

## Installation and Service Bulletins 12/2/19

### **Wiring:**

Check your wire from the start position on the key switch to the starter solenoid. This wire should be 12AWG and can not be extended unless the thickness is increased. The wire to the "B" terminal on the key switch must also be 12AWG and can not be longer than 6 feet or larger wire is required. This wire must be direct from the battery and not connected via any other connections, breakers, switches, etc. If these wires are too small and/or too long the solenoid will not engage with the correct force and the contacts will burn out. This can also cause the actual solenoid coil and/or starter to fail since the poor contact can prevent the starter from receiving the correct voltage.

The wire from the battery to the starter mounted solenoid must be direct and of the correct thickness. The battery should be mounted as near to the engine as possible. You must calculate the required wire gauge based on 100-amp starter current with under 2% total voltage drop. Keep in mind that the battery voltage will drop due to internal resistance and each connection can have some drop. In general, short (under 9.4 feet round trip) battery cables can be 4 AWG. From 9.4 feet to 14.9 feet round trip requires 2 AWG. From 14.9 feet to 18.9 feet round trip requires 1 AWG. Longer runs require thicker wire. Connect the battery cable directly to the starter mounted solenoid. Connect the ground directly to the starter mounting bolt. There must also be a ground strap from the starter mounting bolt to the engine block (provided). Not following these requirements will cause your starter to fail.

Please do not modify the supplied wiring harness.

### **Cam Phase cover:**

On the head at the propeller end of the engine is the cam phase cover. Please check this cover for oil leakage. If you have an oil leak in this area please contact us for a replacement gasket and instructions.

### **Gearbox main bearing retainer and Vibration:**

On the front of the gear box just aft of the prop flange is the main gear box retainer. The main bearing retainer (cover) is held on with 8 socket head screws. Before further flight inspect these screws to make sure they are tight (M6 is 96 in-lbs and M8 is 14 ft-lbs). Mark with "Torque Seal" or equivalent. Before each flight check to make sure "Torque Seal" is intact.

We are now shipping with these screws' safety wired. Please contact us for drilled replacement screws to eliminate the need to inspect the "Torque Seal" before each flight. Please specify M8 or M6.

We have had 3 instances of these screws coming loose over time. In all cases they were on engines that had a noticeable vibration. The AM engines run very smooth and noticeable vibration must be corrected before further flight since this can be destructive to the engine, gearbox and accessories. In most cases the vibration is due to propeller and/or spinner balance or assembly problems.

Vibration may also be from a torsional engine/propeller/airframe interaction and this must also be eliminated or failure can result.

### **Radiator Support:**

Both the top and the bottom of the radiator needs to be supported. If one side is not supported the wind pressure can push the radiator back. This can cause radiator failure and/or cooling issues. Make sure your radiator is correctly supported and not damaged. If your radiator is mounted just below the gearbox pay extra attention to the radiator in front of the large mounting plate bolt. Cooling is critical for flight safety so do not fly with a damaged radiator. Please contact us if you need help with this.

### **Cooling:**

The radiator (expansion tank) cap must be at the highest point in the system. It is absolutely critical that all air is removed from the cooling system for the engine to cool properly. If you do not remove (purge) all the air from the system the engine will overheat and could seize. The warrantee is void if the engine overheats. Please see technical tips at <https://aerosaleseab.com/>

For best cooling in all but cold climates we recommend the use of 30% ethylene glycol automotive antifreeze and 70% distilled/deionized water and a surfactant like Red Line Water Wetter. The use of 30/70 instead of 50/50 provide about 8% more cooling capacity. The Water Wetter reduces the heat transfer coefficient from the engine to the coolant and from the coolant to the radiator by about 50%. This combination provides about a 25% increase in cooling capacity, greatly reduced localized hot spot boiling/cavitation and slightly reduced pumping loss. An engine that runs at about 220 degrees F on 50/50 will run at about 200 degrees F on 30/70 and Water Wetter.

Do not use propylene-based coolants. Even more important is do not mix propylene and ethylene coolants. Even if you drain propylene you can not refill with ethylene without first fully cleaning the system or the cooling system can become coated and then will have reduced efficiency.

### **Initial Running:**

**DO NOT FLY UNTIL EVERYTHING IS WORKING CORRECTLY! YOUR LIFE DEPENDS ON IT!**

Please see technical tips at <https://aerosaleseab.com/>

and AC 90-89B at [https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/AC\\_90-89B.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_90-89B.pdf)