Seabee Service News

REPUBLIC AVIATION CORPORATION
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FUEL PUMP OPERATION IN COLD WEATHER

Recently there have been a number of reports that in cold weather Seabee engines failed to continue running after the fuel in the carburetor bowl was consumed. In a few of the original cases the fault was traced to loose fuel line connections, strainer bowls or strainer drains which permitted air to be sucked into the system instead of fuel from the cell. This, however, has not been the case on airplanes, which recently have experienced starting difficulty, as thorough examinations disclosed no loose connections.

After considerable testing and accumulation of data, we are quite certain that in most instances the trouble has been due to congealed oil which causes lag of the pump linkage and diaphragm thereby preventing the diaphragm from operating through its normal range until the oil has warmed sufficiently. In one case immediately after the engine stopped after about a half-minute of running, the pumps were removed, cleaned of congealed oil and reinstalled. The carburetor bowl was primed and the engine made a normal start and continued to run satisfactorily even though no preheat was used. In another case an engine that failed to continue running after a satisfactory start in sub-freezing weather was placed in a heated hangar overnight after which the engine started and continued running satisfactorily. In all cases where the pumps have failed to draw fuel from the tank, it has been possible to run the engine by disconnecting the fuel line and sucking gas from a container in the baggage compartment which reduces the draught by about one half. After two or three minutes of operation, which would permit the engine oil to warm up, the fuel line was reconnected and the engine continued operation on its regular fuel system.

Should your Seabee have trouble starting in cold weather, it is recommended that the following steps be taken after making certain that all line connections are tight.

1. Check carburetor bowl to be certain that it contains sufficient fuel.

2. Service engine with SAE 20 oil for temperatures below 40°F or 10W oil for temperatures below zero.

3. Remove fuel pumps, clean linkage of congealed oil and reinstall.

4. If still unsatisfactory or if circumstances do not permit above steps, disconnect fuel line in baggage compartment and attempt to start by drawing fuel from a container.

5. Examine fuel pumps for punctured diaphragm or for foreign matter in eliminating the trouble.

It has also been found helpful in some cases to shut off the emergency fuel cock just as the engine stops. This will hold a column of fuel in the system so that when an attempt is made the following morning, more fuel will be available. The starting procedure in this case would be to start and run the engine for ten to fifteen seconds before opening the fuel cock.

The above recommendations are made based on the assumption that the engine starts satisfactorily and runs on the fuel in the carburetor bowl, which normally lasts 20 to 30 seconds. If it is impossible to start engine, check to see that the carburetor bowl has fuel. If it has, proceed with a regular engine and ignition check.

As a last hint, be sure to drain any water from the fuel cell (aft of step) and the fuel strainer (R.H. Wing) to prevent freezing and engine malfunction.

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