



REPUBLIC AVIATION CORPORATION
FARMINGDALE, LONG ISLAND, NEW YORK
• • • SERVICE DEPARTMENT • • •

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PROPELLER COUNTERWEIGHTS

There are three types of counterweights now in service on Hartzell Propellers, one of the standard length, one extra long and one of standard length but which has been relocated and notched for clearance. These counterweights were changed in order to compensate for the greater forces required to return the propeller to high pitch when the actuating cylinder was increased in diameter from 7" to 10". A few propellers were delivered with large cylinders but with the smaller counterweights. This in conjunction with any increase in internal friction results in marginal forces to push the blades into the high pitch position in flight. However, the condition can be remedied by adding a 1/8" slug to the end of the small counterweights (only when used with a large cylinder).

The small counterweights can be identified by measuring the longest length, which is 4.500 inches. The long counterweights measure 4.650 inches. The relocated counterweights are identified by the large notch cut in the side.

It should be noted that engines serial No. 23280 and below must have the small (7") cylinder with the 4.50" counterweight, as the hydraulic and counterweight forces will damage the washer-type reverse thrust bearing. Later engines which have a ball-type thrust bearing can have any combination of propeller.

To clarify the permissible combinations, the following list is presented. First identify the group into which the airplane falls by the engine serial number. Then, determine which propeller cylinder and counterweight combination exists.

1. Engine 23001 to 23280 inclusive:
(Except those modified to permit full reverse thrust)

Must have Hartzell Model HC-12x20-2 propeller:
7" diameter cylinder with standard (4.50") counterweights. The larger cylinder or longer, or notched counterweights, cannot be used. This group of airplanes is restricted to 1750 RPM in reverse.
2. Engines 23281 and up:
(Also those of Group 1 which have been modified at overhaul to permit full reverse thrust.)

(Full reverse RPM of 2500 is permitted with combinations "a", "d" and "e" only.)

- (a) Model HC-12x20-2: 7" diameter cylinder with standard (4.50") counterweights only. (Long or notched counterweights cannot be used with 7" cylinder.)
- (b) Model HC-12x20-3: 10" diameter cylinder with long (4.650") counterweights. (Engines in this group using long counterweights must be restricted to 2300 RPM in reverse.)
- (c) Model HC-12x20-3B: 10" diameter cylinder with standard (4.50") counterweights must be converted to the -3A model by adding slugs to these counterweights. (Reverse RPM must then be restricted to 2300.) A Service Bulletin will be prepared by Hartzell on this item in the near future.
- (d) Model HC-12x20-3C: 10" diameter cylinder with relocated (notched) counterweights.
- (e) Model HC-12x20-3E: 10" diameter cylinder with relocated (notched) counterweights.

The 1/8" slugs, which are to be added to 2 (c) above, can be procured from the Hartzell Propeller Company, Piqua, Ohio at no charge. They have offered to modify any propeller requiring slugs at their factory free of charge. The Hartzell model numbers above have just recently been agreed upon by CAA and Hartzell, so all propellers do not have that identification at present.

