



Instead of the Hamilton Standard constant-speed propeller you used in the AT-6, you now use a 3-bladed Curtiss Electric propeller. To maintain a constant engine speed, the angle of the blades in the Curtiss Electric is varied through an arc of 30° (from 24.5° to 54.5°) by a propeller governor and electric motor. The current for operating the propeller governor and the electric motor comes from the battery and generator through propeller switches on the cockpit switch panel to the propeller control system.

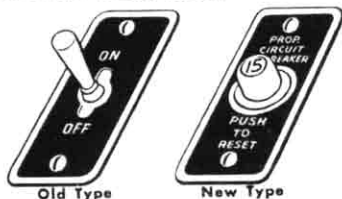
You can operate the propeller automatically or manually. For all ordinary purposes you use automatic operation. Manual, or **FIXED PITCH**, operation is for emergencies.

When you operate the propeller automatically, the desired engine speed is held constant by a governor which is set by the propeller control on the throttle quadrant.

When you operate it manually, the blade angle is varied by means of a dashboard selector switch which is independent of the governor.

PROPELLER CONTROL

The propeller is controlled by a breaker switch and a selector switch.



1. BREAKER SWITCH

The breaker switch is an overload switch with ON and OFF positions. For all normal

operations, use the ON position. When there is an overload current on the propeller's electrical system, the breaker switch snaps to OFF. Should this happen, put the selector switch in **FIXED PITCH**. Wait 15 seconds and push the breaker switch back to ON.

Note: When the breaker switch goes to OFF during takeoff, don't wait. Push it back to ON immediately.

There are two types of breaker switches. The new type is a pop-out switch resembling a cigar lighter on an automobile dashboard. When it is out, its red base is visible. Push it back to put it in the ON position. The old-type switch looks and works like an electric light switch.

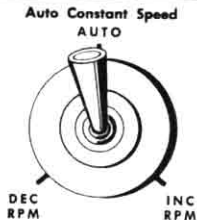
2. SELECTOR SWITCH

The selector switch has four positions:

A. AUTO CONSTANT SPEED

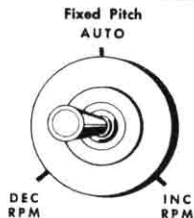
When the switch is in this position, constant engine speed is maintained and the propeller blade angle is automatically varied by the propeller governor.

This is your normal operating position.



B. FIXED PITCH

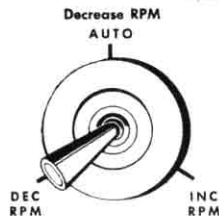
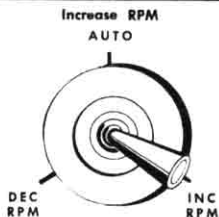
With the switch in this position the electrical circuits of the propeller are open and the propeller operates as a fixed-pitch propeller.



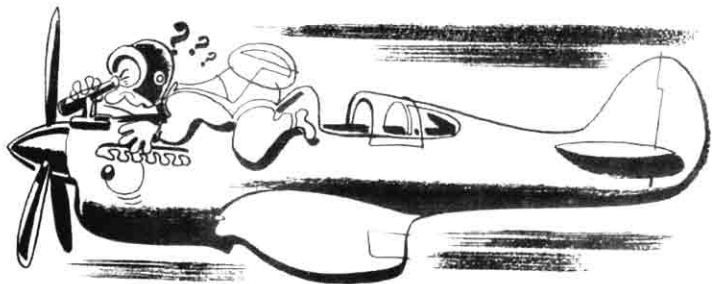
C. INC RPM

To vary the angle of the blades when the propeller is in FIXED PITCH, move the selector switch to INC RPM or to DEC RPM and hold it there until desired rpm is reached. When you release it, it snaps back to FIXED PITCH. The INC RPM and DEC RPM positions are your only means of varying blade angle when the propeller is in FIXED PITCH. When the propeller is in AUTO CONSTANT SPEED you use the propeller control lever on the throttle quadrant to increase or decrease rpm. (On P-40 N's with prop and throttle linkage, you increase or decrease rpm by advancing or retarding the throttle.)

D. DEC RPM



PROPELLER TROUBLE



If the propeller goes out, whether through propeller or electrical system failure, it is likely to go to either maximum high or maximum low rpm. Here's what you do:

1. Move the propeller selector switch from the AUTO CONSTANT SPEED to the FIXED PITCH position.
2. Make sure the breaker switch is on.
3. Try to increase or decrease your rpm (whichever is needed) by moving the selector switch to the INC RPM or DEC RPM position.
4. If you can't adjust the rpm immediately, re-set the manifold pressure to the minimum that maintains flight, and land at the nearest field.

Caution

If the generator is out, cut off radio and all electrical circuits not needed. Then before you land, put the propeller breaker switch on and try to increase or decrease rpm to 2600 with a manifold pressure of 35" Hg.

If the tachometer oscillates while the propeller is in AUTO CONSTANT SPEED, move the selector switch to the FIXED PITCH position to find out what's wrong. If the oscillation continues while the propeller is in FIXED PITCH, you know that the trouble is either in the engine or instruments. If the oscillation stops, the trouble is in the propeller or propeller controls. Make the proper entry in your Form 1A.