

Ivoprop Corp.

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OPERATION

- Red 1 led lights up when governor wants to drive prop to lower pitch
- Red 2 lights up anytime the prop is actually driven to lower pitch. Goes out if prop reached its low mechanical pitch limit. Or goes out if red 1 led goes out.
- Green 1 and 2 led- same like red ones but prop drives to higher pitch.

INSTALLATION

- Follow the wiring diagram.
- In one position of the SS the PS will control the prop. Write next to PS-“CLIMB” “CRUSE”.
- In the other position the governor controls the prop. Write next to SS-“MAN” “AUTO”.
- When SS is in middle neither manual nor automatic pitch control will work.
- 2 output wires are those with 3 way connectors.
- As you switch SS to AUTO (with engine running in high idle and prop at neutral position) 3 things will need to happen in sequence:
 - 1- Red 1 led will light up. If it does not flip the input wires.
 - 2- Red 2 led will light up (ultralight and medium model is pulsed and there is 5 seconds delay) and governor will drive the prop to its min. mechanical pitch limit. If it drives to max. Pitch limit flip the output wires.
Make sure that in a process you did not flip the polarity of prop wires in relation to PS.
 - 3- As prop reaches its pitch limit the red 2 will go out. If it does not turn the disconnecter trimmer counter clockwise until it does.

If red 2 goes out before prop reaches its pitch limit turn the disconnecter clockwise.
This needs to be done with engine running so that there is approximately 14V in the system.
If there is only 12V the disconnect or will disconnect sooner.

SETTING MAX AND MIN RPM YOU WISH GOVERNOR TO CONTROL

- Disconnect one of the prop wires.
- Set the SS to auto.
- Run the engine at minimum RPM you wish to control
- Set the knob fully counter clockwise
- Adjust lo trimmer so that both red 1 and green 1 led are out.
- Increase the engine RPM to max RPM you wish to control
- Set the knob fully clock wise
- Adjust hi trimmer so that both red 1 and green 1 led are out.
- Turning hi or lo trimmers clockwise will increase desired RPM and will cause green 1 led to go out and red 1 led to light up.
- Anytime you readjust your low trimmer setting your hi trimmer setting will also change in same direction.
- However readjusting your hi trimmer will not change your lo trimmer setting.
- Reconnect the prop wire.

ADJUSTING WINDOW TRIMMER

- Window is narrow band of RPM (around the desired RPM) within which governor will not control the prop.
- If the window trimmer is fully counter clockwise the window is zero and the system will oscillate. The red and green leds will alternatively flash and engine RPM will go up and down.
- Opening the window eliminates this oscillation.
- Leave window trimmer at it's middle position.
- Turn knob fully clockwise.
- Run engine full throttle.
- If oscillation starts turn window trimmer slowly clockwise until it stops.
- If there is no oscillation turn window trimmer slowly counter clockwise until it starts and then back it of until just stops.
- Throttle back and forth slightly trying to induce oscillation.
- The goal is to set as small window as possible without causing oscillation.
- Confirm that there is no oscillation in other aircraft operations like take-off, climb, cruise and descent.
- Do not try to adjust the window trimmer for cruise RPM on the ground-blades might be stalling.
- Do first take-off on manual control!

PULSAR TRIMMER

- Controls the length of the pulse driving the prop pitch.
- The shorter the pulse the smaller is the window but it will take the Governor longer to react to RPM changes.
- Is factory set to what we think is the best compromise between the size of the window and how quickly Governor will respond.
- Magnum model is not pulsed and does not have pulsar trimmer.
- Disconnect one of prop wires.
- Set the SS to auto. Do not start the engine.
- With stopwatch measure how long red 2 led stays on so you can go back to original setting.
- Turning trimmer ccw increases pulse length.
- When fully ccw there will be no pulsing, red 2 led will stay on all the time, Governor will react faster and window size will increase.
- When fully cw the red 2 led will be out all the time and Governor will not work.
- Reconnect the prop wire.

SUGGESTIONS

- Install PS so that its movement is in vertical directions. pushing switch up should be pitching prop to climb and down for cruise.
- Install SS in horizontal position. When it aims towards PS it should be in "man" and when towards governor in "auto" position.
- You can set min. rpm you wish to control to be idle rpm. However that will make the knob control very sensitive. Therefore you should set min. control rpm to be the min. practical rpm in cruise flight.
- When you get everything adjusted and after you get tired of watching leds drill the hole in a panel and install the governor behind the panel (Using only the outside nut behind the knob). You can write actual RPM on a panel next to the knob's pointer.
- For landing set knob fully clockwise. That way as you throttle back the governor will drive the prop to it's min. mechanical pitch limit to slow you down and be ready for go around.

IMPORTANT

- Do not shorten wiring harness supplied with In-Flight Adjustable Prop. If you do so the Governor disconnect function will not work and you also destroy the gear motor drive.
- Ultralight model leadscrew In-Flight Adjustable Hub needs to be covered with grease every 25 hours.
- On some two stroke engines it might be impossible to set your minimum RPM you wish Governor to control into mid range RPM of the engine without oscillation.
 - This has to do with non-flat midrange torque curve of the engine.