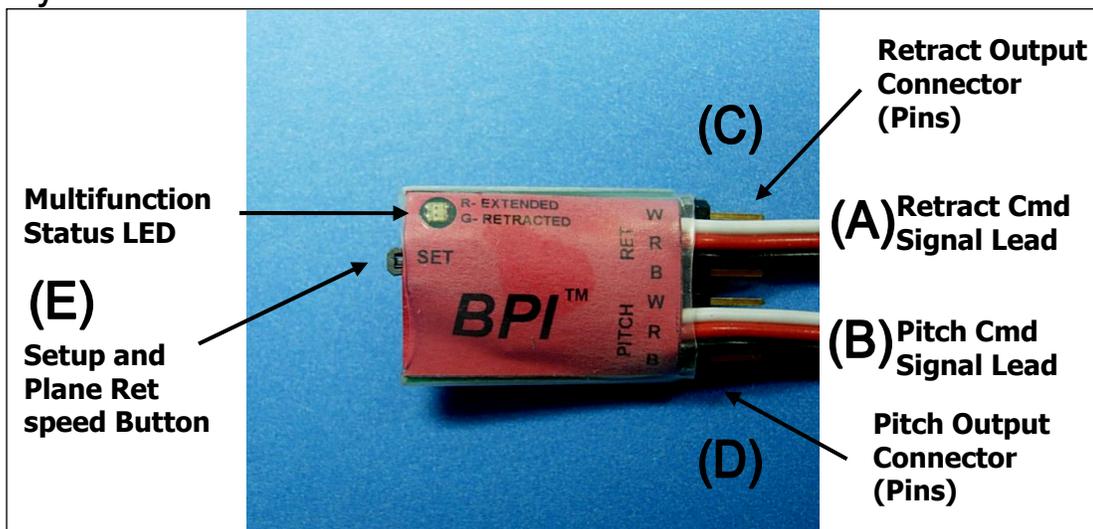


BowPlane Interlock

General layout



Quick Setup Guide

1. Install and setup your receiver, bowplane retract and bowplane pitch servos. DO NOT connect the bowplane pitch linkage at this time.
2. Plug the **Retract Command Signal Lead (A)** into the bowplane retract channel of your receiver
3. Plug the **Pitch Command Signal Lead (B)** into the bowplane pitch control channel of your receiver.
4. Plug the bowplane retract servo into the **Retract Output Connector (C)** on the BowPlane Interlock taking note of the correct polarity.
5. Plug the bowplane pitch servo into the **Pitch Output Connector (D)** on the BowPlane Interlock taking note of the correct polarity.
6. Use the **Setup Button (E)** to set the planes retracted, planes extended and (retracted) pitch override servo positions.
7. Set the bowplanes to the extended position and set the servo direction and endpoint adjustments for the pitch servo in your radio.

Features

- Prevents damage to retractable bowplane mechanics by overriding bowplane pitch servo position during plane retract operation and depowers pitch servo once planes complete their retraction sequence.
- User programmable retract servo actuation speed.
- Does not need to be plugged in to adjacent channels on your receiver and doesn't care if bowplane pitch or retract function is assigned to a higher channel number.

Multifunction Status LED

When power is initially switched on both red and green lights will turn as part of a power on self test. The BPI will then indicate the order in which it generates servo pulses using the LEDs:

3 blink GREEN	Retract after Pitch mode
2 blink GREEN, 1 blink RED	Pitch after Retract mode

During normal operation the function of the Multifunction Status LED changes to indicate:

GREEN (solid)	Planes retracted, no power to pitch servo
RED (solid)	Planes extended, pitch servo powered

During setup operation the function of the Multifunction Status LED changes to indicate:

1 blinks GREEN	Set retract servo EXTENDED position
2 blinks GREEN	Set retract servo RETRACTED position
3 blinks GREEN	Set pitch servo position when planes are retracted.

BowPlane Interlock Installation

The BowPlane Interlock can be mounted any place that's convenient. It is recommended however that you choose a location that will allow easy access to the setup button should any tweaking be required and has a view of the LEDs as these can be helpful for diagnostic purposes.

BowPlane Interlock Setup

During the setup mode the retract servo endpoints and pitch override point are all set by manipulating the bowplane **pitch** control input. For all three setup steps the pitch control input range is divide up into 5 regions. When the pitch control is in the central region and no adjustment is being made step number (indicated with a green blink pattern) will be followed by a single red blink. When the pitch control is in the region just outside the central region the servo position will be finely adjusted, either up or down depending on which way the pitch control was moved from center. When the pitch control input is far away from the central region the servo position will be coarsely adjusted, again either up or down depending on which way the pitch control was moved from center. During each of the setup steps below you should ensure the pitch input control is returned to the central region before pressing the setup button to move on to the next step. (If your pitch input is a spring return stick you may have to use the trim tab to find the center point. Remember to reset the trim tab to where it was once the BowPlane Interlock setup is complete.)

Before entering Setup mode it is strongly recommended that you disconnect the bowplane pitch and retract servos from their linkages. To enter setup mode turn on your transmitter, press and hold the setup button on the BowPlane Interlock, then turn on your receiver. The status LED will flash to indicate the power on self test result and input configuration, and will then show a solid green to indicate that you've entered Setup mode. (You may now release the Setup button.)

1. The status LED will now flash a single green blink. This will be followed by a 1 red blink if your pitch control input is in the central region as described above. Set the retract switch/knob on your transmitter to the desired EXTENDED position. Move the pitch control input up or down as necessary to drive the retract servo to the required position to drive the planes to the extended position and reconnect the retract servo linkage. Press and hold the setup button to save the EXTENDED command input and servo position until the green LED is lit (nolonger flashing) then release the button.
2. The status LED will now flash a 2-green blink pattern, again followed by 1 red blink if the pitch control input is in the central region. Set the retract switch/knob on your transmitter to the desired RETRACTED position. Move the pitch control input up or down as necessary to drive the retract servo to the required position to drive the planes to the retracted position. Press and hold the setup button to save the RETRACTED command input and servo position until the green LED is lit (nolonger flashing) then release the button.
3. The status LED will now flash a 3-green blink pattern, again followed by 1 red blink if the pitch control input is in the central region. Move the pitch control input up or down as necessary to drive the pitch servo to the required position while the planes are in the retracted position. (You may now reconnect your bowplane linkage.) Press and hold the setup button to save the OVERRIDE pitch servo position until the green LED is lit (nolonger flashing) then release the button.
4. This completes the BPC setup, however the bowplane pitch servo direction and limit settings in your transmitter should still be checked.

Stetting the BowPlane Retraction Speed

During normal operation mode, press and hold the set button for at least 2 seconds, then release. When the button is released the retraction speed setting will change to the next setting and the red LED will flash the new speed value. There are three speed settings, 3 being the fastest and 1 being the slowest. The default speed setting is 1 (slow).

General Notes

- The end point adjustments for your bowplane retract servo is stored in the BPC, but the end-point adjustment for your pitch plane servo still resides in your transmitter.
- If you need to make an adjustment to one of the settings in your BPC simply run the SETUP routine again. The BPC will remember your previous settings so minor adjustments are easy to make.
- Both the Retract Command and Pitch Command signal leads must be connected to your receiver before powering the BPC.
- During the power on self test, if either the pitch or retract signals are not detected in time the BPC will begin flashing error codes. GREEN+RED followed by 1 RED blink indicates the pitch signal is absent. GREEN+RED followed by 2 RED blinks indicates the retract signal is absent.
- At the end of the setup sequence if you have forgotten to teach the BPC both the RETRACTED and EXTENDED command input positions the BPC will not save the setting you've programmed and will begin flashing a GREEN+RED then 3 RED blink pattern.
- It is recommended that you make a habit to always power down and power up your boat with the bowplanes (and transmitter) set to the same position, be that either RETRACTED or EXTENDED.

Questions?

- If you have questions or concerns about your BPI please contact Kevin McLeod by email at KevinMc.Electronics@gmail.com