***Digiflight II Series Autopilot***

**Power up/ Initialization**

 Do not power up until after engine start

 Will show “PWR UP” in lower right cornet

 Will change to “AP OFF” when internal gyros (do not move aircraft until initialized)

 Beneath “HDG” a “.” Will appear = GPS working but no fix

 When “\*” appears and a 10K g/s is attained “HDG” will be replaced with “TRK”

**Lateral Modes**

When “engaged” (HOLD DISCONNECT BUTTON ON STICK FOR 2 SECONDS) it will sync to direction being flown “TRK” (or press “Enter”)

 The Number following “SEL” (selected direction) will be underlined meaning it can be changed

 Rotation will give 1 deg. step, depressed = 5 deg. steps

 If GPS flight plan active push “MODE” will engage “GPS NAV” and flashing “+” A/P will follow Flight Plan. (A/P will not anticipate the waypoint and will overfly)

**GPSS Mode**

 “Mode” button for GPSS (GPS Steering) will follow lateral steering commands generated by GPS

 If “GPSS” push “ALT” will engage “GPSV (GPS vertical)

**Magnetic Back-Up Mode**

 When GPS is lost the DG is slaved to a magnetic heading and “TRK” is replaced with “HDG”

**Vertical Modes**

 Lower right displays “SVS” (Selected Vertical Speeds)

 To enter Altitude Hold at any time push “ALT” two times

For altitude change, push and release “ALT button and curser will move to SVS (selected vertical speed). Rotate knob to select vertical speed. If curser under SVS one push of “ALT” will select zero. Once vertical speed selected, push “MODE” will move curser back to “SEL” (or wait 7 seconds)

 In “GPSS” mode, pushing “ALT” will enter “GPSV” mode.

**Pitch Trim**

 Three moving horizontal bars indicate needed pitch trim change needed.

**Min and Max speed**

 Set as safety. If triggered it will remain at max or min airspeed and not selected vertical speed.

**Power Loss**

 If momentary loss of power the gyros will have to be reset. Fly at steady, straight line, and holding in the knob for at least 10 seconds (Gyro Set will appear). After another 10 seconds release and reengage.

***Setup Procedures Digiflight II Series Autopilot***

**Lateral Settings**

 To enter the lateral setup mode, press and hold the “MODE” button for 3 seconds. To advance to next setting press “ALT”

1. Aileron servo
	1. Shows “LAT ACTIVITY” with curser under Value, set any value between 0 and 24
	2. Set to not be excessive in turbulence and fly without hunting in still air
2. Roll Servo Torque
	1. Set between 7 and 12
	2. Set to not be too difficult to override autopilot
3. Primary RS-232 interface
	1. 4800 baud (default)
	2. Consult GPS manual for setup
4. Bank Angle
	1. How much bank the A/P will command when in a turn
	2. Low, Med, High
5. Microactivity
	1. Used when a slow wing observed in still air
	2. Usually left at “0”
6. Magnetic Calibration
	1. Trim for level flight
	2. Compensate for internal magnetic disturbances within the aircraft
	3. To skip press quickly and release knob while “N” is selected
	4. Calibrate when little wind or turbulence is present
	5. The A/P will turn to each cardinal heading for 10 seconds
	6. Press and release encoder knob to begin sequence
	7. Shows “Calibrating Turning North”
	8. Now turns to North using GPS heading
	9. Shows “Calibrating Holding North”
	10. After 10 seconds moves 90 deg to east and repeats
	11. When done shows “Mag Cal Done Press Enter”
	12. Press “knob” to confirm
	13. Now A/P in “HDG” mode and can test
	14. When done, “disengage and engage” AP

**Pitch Settings**

1. Vertical Activity
	1. Shows “VRT ACTIVITY”
	2. Value between 0 and 24
	3. Typically set to 2
	4. Push “ALT” to advance
2. Vertical Torque
	1. Shows “VRT TORQUE”
	2. Select desired value for “pitch servo torque”
	3. Between 7 and 12
	4. Value selected should not be so difficult to override but sufficient to fly airplane
3. Minimum Airspeed
	1. Shows “MIN AIRSPEED”
	2. Use knob to select Minimum Airspeed the A/P will fly
	3. Select a safe airspeed above stall (70 knots for SportStar)
4. Maximum Airspeed
	1. Set safest maximum airspeed (Use 120 knots for the SportStar)
5. Static Lag
	1. Shows “STATIC LAG”
	2. Chang only if A/P tends to oscillate in pitch during altitude hold
6. Micro Activity
	1. Used only if slow oscillation has been observed while in altitude hold in very still air
	2. Used to compensate for lost motion in control linkage
	3. Most cases left at 0
7. Half Step (Should not have to be changed)
	1. Makes servo take half steps but decreases amount of torque
	2. Should be left at “N” unless nose moves up and down in Altitude Hold
	3. Press “knob” to return to normal flight screen
8. Contrast Adjustment (Adjust only while on the ground)
	1. A/P Power “Off”
	2. Push and hold the encoder knob in while turning on power.
	3. After 1 second release and the current contrast will be displayed
	4. Exit by pressing the “knob”.