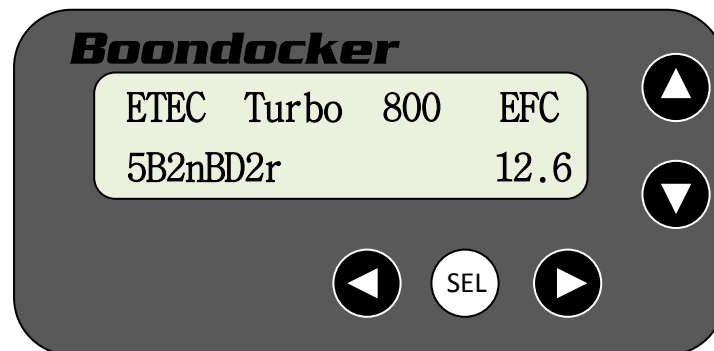




## **Skidoo E-Tec Turbo Control Box Operation Instructions**

### **Startup Screen and Basic Function**

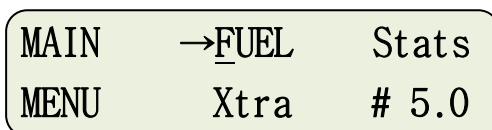
When the control box is powered up the Start Up Screen will be displayed.



There are five buttons used to navigate through the BoonDocker Control box.

- Left Arrow Button
- Select (SEL) Button
- Right Arrow Button
- Up Button
- Down Button

Push any button to advance from the Start Up Screen to the Main Menu.



Use the arrow buttons to move the →(cursor), up, down, left or right.

Once the →(cursor) is next the desired menu item press the SEL button to advance to that screen.



## Skidoo E-Tec Turbo Control Box Operation Instructions

### Fuel Screens and Operation (rpm screens)

Position the → (cursor) next to “FUEL” and press the SEL button to advance to the first fuel “rpm” screen.

MAIN	→FUEL	Stats
MENU	Xtra	# 5.0

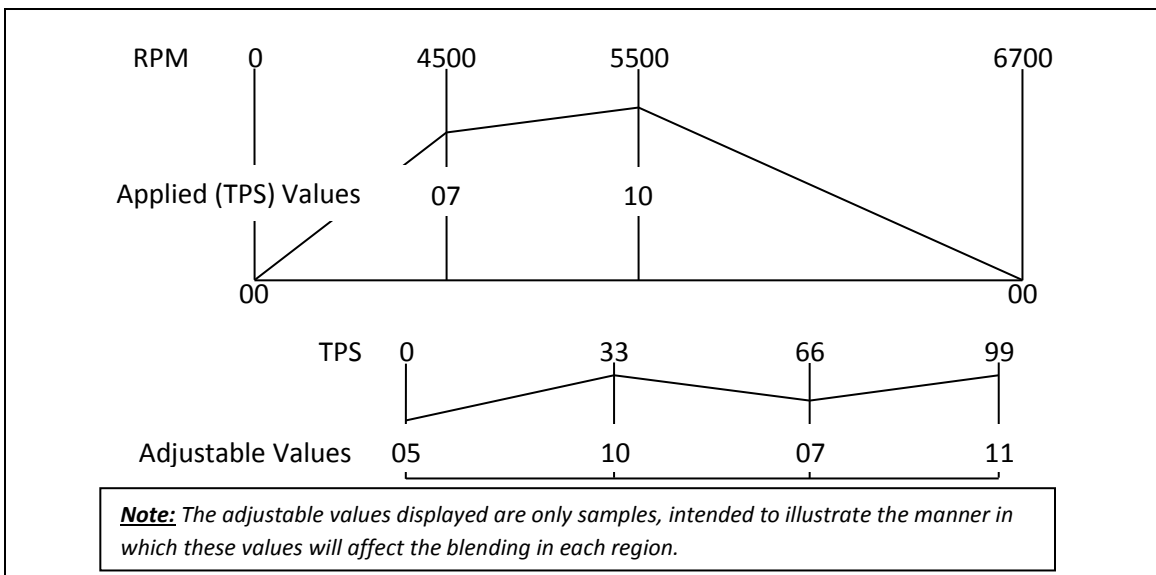
There are two fuel (rpm) screens. These screens will allow the user to make fueling adjustment according to RPM only. The values set in these two rpm screens will adjust fueling according to the corresponding RPM ranges regardless of boost pressure. Each of the fuel screens are labeled with that screen’s corresponding RPM in the lower left hand corner of the display and have four adjustment points: 0, 33, 66, and 99. These adjustment points represent a given throttle position (TPS) percentage, 0% being no throttle and 99% being full throttle. The two digit number below each TPS value represents the amount of fuel that will be added to the given RPM and TPS range. Each of the RPM ranges blend into each other and taper off to zero as demonstrated in the RPM figure below. Each TPS range blends to the previous and next adjustment point as demonstrated in the TPS figure below.

To make adjustments, use the left and right arrow buttons to position the →(cursor) next to the appropriate TPS value and use the up and down buttons to increase or decrease the fuel value.

To advance to the next screen press the SEL button.

rpm	→ 0	33	66	99
4500	00	00	00	00

rpm	→ 0	33	66	99
5500	05	03	00	-05





## Skidoo E-Tec Turbo Control Box Operation Instructions

### **Fuel Screens and Operation (psi screens)**

There are five fuel (psi) screens. These screens allow the user to make fueling adjustments for boost. Each of the fuel screens are labeled with that screens corresponding RPM in the lower left hand corner of the display and has four adjustment points 0, 33, 66, and 99. These adjustment points represent a given throttle position (TPS) percentage, 0% being no throttle and 99% being full throttle. The adjustable two digit numbers below each TPS value represents the amount of fuel that will be added to the given RPM and TPS range. The values set in these psi screens will adjust fueling according to the corresponding RPM and TPS ranges while automatically factoring in boost pressure. Each of the RPM ranges blend into each other as demonstrated in the RPM figure below. Each TPS range blends to the previous and next adjustment point as demonstrated in the TPS figure below.

To make adjustments, use the left and right arrow buttons to position the →(cursor) next to the appropriate TPS value and use the up and down buttons to increase or decrease the fuel value. To advance to the next screen press the SEL button.

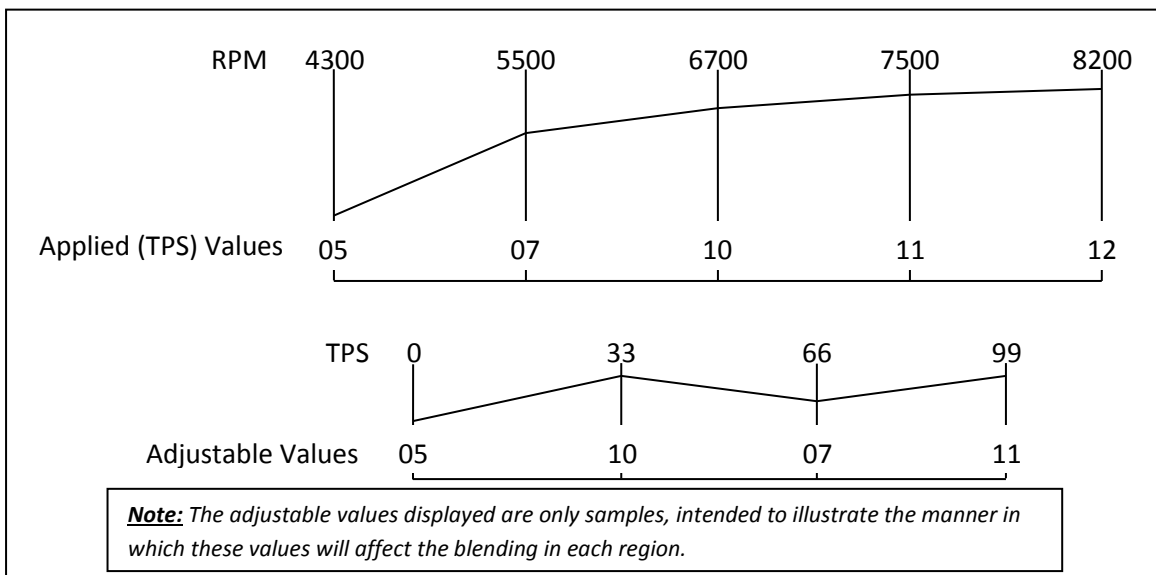
psi	→ 0	33	66	99
4300	05	05	00	00

psi	→ 0	33	66	99
7500	28	30	32	40

psi	→ 0	33	66	99
5500	20	25	16	11

psi	→ 0	33	66	99
8200	15	25	38	50

psi	→ 0	33	66	99
6700	30	34	26	30





## **Skidoo E-Tec Turbo Control Box Operation Instructions**

### **Fuel Screens and Operation (ACEL screen)**

*Note: (The ACEL feature is useful for precise tuning, and if misused can create a wide range of tuning issues. ACEL adjustment should only be made after all other tuning parameters have been properly adjusted. ACEL adjustments should only be made by persons with an in-depth knowledge of tuning and Boondocker control box use.)*

The ACEL feature is an electronic accelerator pump that can be used to add fuel according to throttle movement. When the throttle position is advanced (opened) the ACEL is activated.

Sensitivity (Sens): The set sensitivity determines how far or fast the throttle position should be advanced before the ACEL is activated. The value set below SN will determine the sensitivity, 01 being the most sensitive and 10 being the least sensitive, 00 being on all of the time.

Amount (AF): The set amount determines the amount of fuel that will be added when the ACEL is activated.

Duration (DR): The set duration determines the amount of time (number of engine cycles) the ACEL feature will add fuel each time the ACEL is activated.

RPM	→ <u>AF</u>	DR	Sens
ACEL	00	00	08

DCEL is basically the same thing as ACEL only it will add/subtract fuel when it senses the throttle being let off.



## Skidoo E-Tec Turbo Control Box Operation Instructions

### **Xtra Screens and Operation**

The extra (Xtra) screen contains features that can be used to add fuel when the adjustable specified parameters for PSI and RPM are met. Auxiliary button parameters can also be adjusted in the Xtra screen.

Position the → (cursor) next to Xtra and press the SEL button to advance to the extra screen.

MAIN	FUEL	Stats
MENU	→ <u>X</u> tra	# 5.0

The adjusted FUEL value will determine the amount of fuel that will be added when the auxiliary button is pushed if button is set to TUN. *Note:* To adjust parameters position the → (cursor) below the desired parameter, FUEL, PSI or RPM or Btn and press select.

FUEL	PSI	RPM	Btn
→ <u>0</u> 00	OFF	OFF	Tst

The PSI or RPM parameter can be turned on or off using the up and down arrow buttons with the → (cursor) positioned next to the (OFF/ON) below PSI or RPM.

PSI	Xtra	on	if
→ <u>O</u> FF	PSI	<	4.6

RPM	Min	Max
OFF←	3900	5950

When the PSI Xtra is ON fuel will be added only when the boost pressure is less than the adjusted value. To adjust the less than PSI value use the up and down arrow buttons with the →(cursor) next to the PSI adjustable value.

When the RPM Xtra is ON, fuel will be added only when engine rpm is between the minimum and maximum adjusted values. To adjust the RPM minimum and maximum use the up and down arrow buttons with the →(cursor) next to the Min or Max adjustable value.

*Note: (The Xtra PSI feature has to be turned on for this function to be activated.)*



## **Skidoo E-Tec Turbo Control Box Operation Instructions**

### **Xtra Screen button operation**

There are four functions that can be assigned to an auxiliary button. Tst, +HP, TUN, and CAP. To assign a function to the auxiliary button position the →(cursor) below Btn and use the up down arrow buttons to toggle to the desired option.

Test (Tst): When set to Tst the auxiliary button can be used to test the auxiliary injectors. With the engine idling if the auxiliary button is pushed the auxiliary injectors will spray, usually over fueling the engine and causing the engine to die. *Note: (To test injectors individually the opposite injector should be unplugged while performing test.)*

Description: Btn  
Test AuxInj: → Tst

Plus Horse Power (+HP): When set to +HP the auxiliary button can be used to momentarily add a designated amount of boost. The designated amount of boost can be adjusted in the Boost screen (see page 8 for more details).

Description: Btn  
Button +HP: → +HP

Tune (TUN): When set to TUN the auxiliary button can be used to momentarily add fuel through the Auxiliary injectors. The amount of fuel added is determined by the value set below FUEL when Btn is set to TUN. *Note: (Btn must be set to tune to access this adjustment. See page 5 for more details.)*

Description: Btn  
Fuel only : → TUN

Capture (CAP): When set to CAP the auxiliary button can be used to capture statistics in the Stats screens. With the engine running when the auxiliary button is pushed statistics will be captured in the Stats Cp Screens (see Stats screen on page 7 for more details).

Description: Btn  
StatCapture: → CAP



## Skidoo E-Tec Turbo Control Box Operation Instructions

### Stats Screens

Statistics (Stats) screens display information that can be very useful.

Position the → (cursor) next to “Stats” and press the SEL button to advance to the extra screen

MAIN	FUEL	→ <u>S</u> ats
MENU	Xtra	# 5.0

Run screen: The Run screen displays live information when the engine is running. Auxiliary injector duty cycle percentage, boost pressure (upper right), engine rpm (lower left), TPS percentage (lower middle) and charge air temperature °F (lower right).

<u>R</u> un	00%	0.0
0000	tps99	00 <sup>F</sup> °

Capture (Cp) screens: Press the up or down arrow button when on the Run screen to display the ten capture screens 0,1,2,3,4,5,6,7,8, and 9 (*Press the right arrow button to return to the Run Screen*). When Btn is set to CAP in the Xtra menu, a capture series can be started with the engine running by pushing the auxiliary button. When the button is pushed the capture feature is armed, when the button is released a statistics screen will be recorded every 7 engine cycles and can be reviewed in the Cp screens.

<u>C</u> p1	00%	0.0
0000	tps99	00 <sup>F</sup> °

Maximum (MAX) Screens: There are two MAX screens. The first MAX screen displays maximum rpm, and auxiliary injector duty cycle. The second MAX screen displays maximum boost pressure (PSI) and charge air temperature (Temp). To clear MAX screens position the →(cursor) next to (Y) and press the SEL button.

MAX	Inj%DC	Clr
0000	00	→ <u>Y</u> N

MAX	PSI	Temp	Clr
	0.0	00	→ <u>Y</u> N



## **Skidoo E-Tec Turbo Control Box Operation Instructions**

### **Boost Screen**

Position the → (cursor) next to # and press the SEL button to advance to the boost screen.

MAIN	FUEL	Stats
MENU	Xtra	→# 5.0

Boost screen: The boost screen has two adjustable values: Psi and Btn. The Psi value can be set to the desired boost pressure. Once the desired boost pressure has been set, the Boondocker control box will automatically adjust boost for changes in atmospheric pressure such as changes in elevation. *Note: (The minimum achievable boost pressure will be dependent on the waste gate actuator.)*

Button (Btn): The value set below Btn is the amount of boost that can be momentarily added by pushing the auxiliary button, when Btn is set to +HP in the Xtra menu (see page 6 for more details).

Psi	Btn
5.0←	2.0





## **Skidoo E-Tec Turbo Control Box Operation Instructions**

### **Boost Solenoid Installation**

Install the boost solenoid in a pressure line between the air box (or charge tube) and wastegate actuator. Attach the metal port of the solenoid with a 3/16" hose to the air box (or charge tube) fitting (see the figure below). Connect the right-angle port of the solenoid with a 3/16" hose to the wastegate actuator. Attach a short length of hose to the third port and point it downward so that it won't get water in it. This is the actuator vent hose. Attach the solenoid so that it is supported. Use small zip ties to secure the hoses to the ports.

