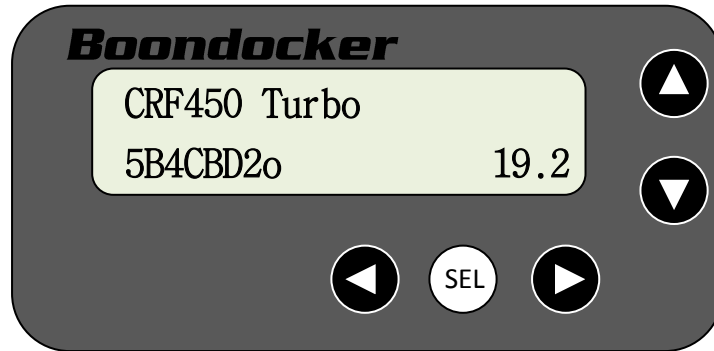




Honda CRF450 Turbo Control Box Operation Instructions

Start up Screen and Basic Function

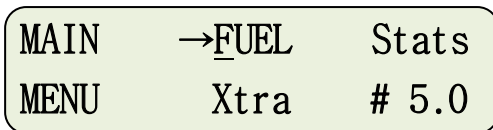
When the control box is powered up the Start Up Screen will be displayed.



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.



Honda CRF450 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

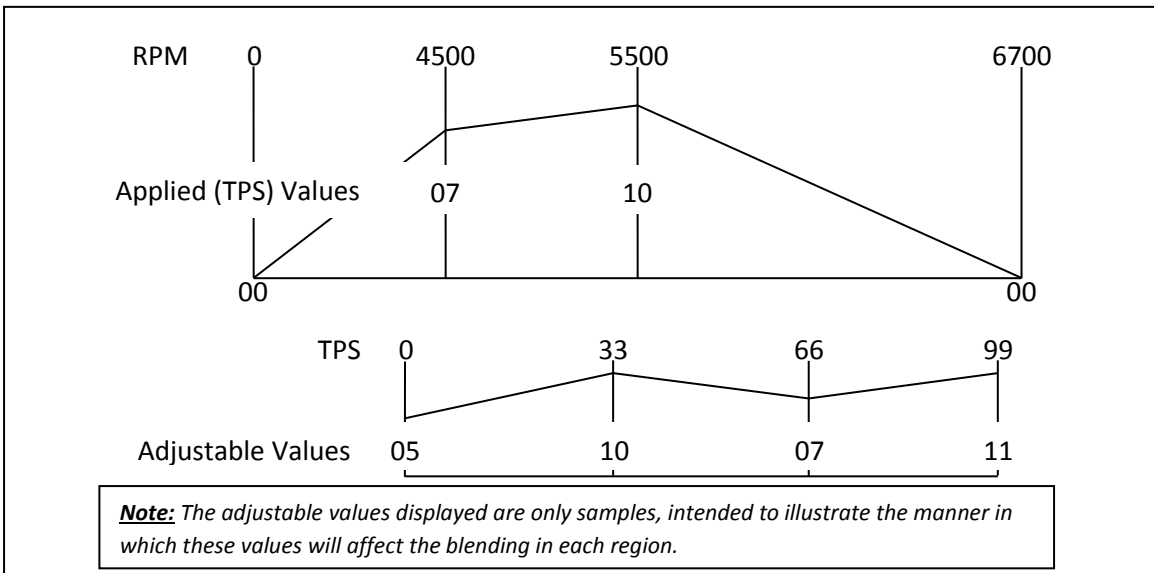
There are two fuel (rpm) screens. These screens will allow the user to make fueling adjustment according to RPM only. The values set in these two rpm screens will adjust fueling according to the corresponding RPM ranges regardless of boost pressure. Each of the fuel screens are labeled with that screen’s 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 (or subtracted) 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
3000	01	02	00	00

rpm	→ 0	33	66	99
5000	00	-20	-29	-28





Honda CRF450 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.

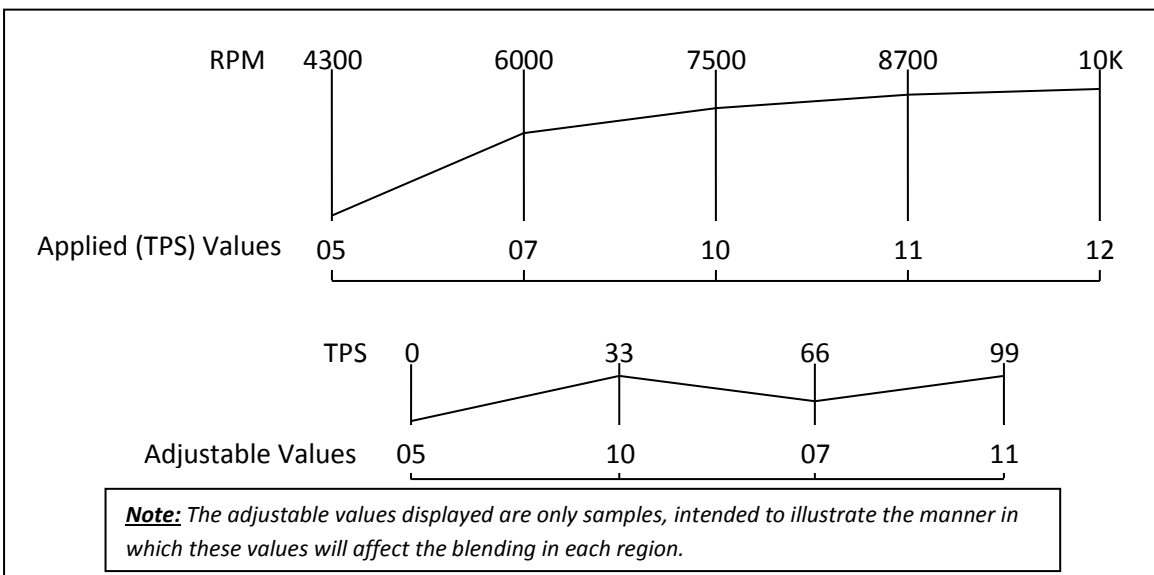
psi	→ 0	33	66	99
4300	00	00	00	00

psi	→ 0	33	66	99
8700	22	32	32	36

psi	→ 0	33	66	99
6000	00	-07	-07	-08

psi	→ 0	33	66	99
10K	24	42	47	47

psi	→ 0	33	66	99
7500	06	07	07	10





Honda CRF450 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 (or subtract) fuel according to throttle movement. When the throttle position is advanced (opened) the ACEL is activated.

Sensitivity (SN): 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 (AL/AH): The set amount determines the amount of fuel that will be added (or subtracted) when the ACEL is activated. The value set below AL will determine the amount of fuel that will be added when the engine is being operated below 2.0 psi of boost. The value set below AH will determine the amount of fuel that will be added when the engine is being operated above 2.0 psi of boost.

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

RPM	→ <u>AL</u>	DR	SN	AH
ACEL	00	00	08	00



Honda CRF450 Turbo Control Box Operation Instructions

Xtra Screens and Operation

The extra (Xtra) screen contains features that can be used to add or subtract 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	→Xtra	# 5.0

The adjusted FUEL value will determine the amount of fuel that will be added or subtracted when the auxiliary button is pushed if button is set to TUN. *Note: (The Btn Tun FUEL value can be set from this screen only when Btn is set to TUN, otherwise the screen will be advanced to the LO, MD, HI screen to make FUEL adjustments for the PSI and RPM parameters.)* To adjust parameters position the → (cursor) below the desired parameter, FUEL, PSI or RPM or Btn and press select.

FUEL	PSI	RPM	Btn
→000	OFF	OFF	Tst

The LO, MD, HI in the Xtra FUEL menu represent throttle position LO being the first third, MD being the middle third and HI being the last third of the throttle range. *Note: (Btn cannot be set to TUN to access this screen)*

LO	MD	HI
→000	000	000

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
→OFF	PSI	<	4.6

RPM	Min	Max
OFF←	3900	5950

When the PSI Xtra is ON fuel will be added or subtracted 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 or subtracted 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 should always be used in conjunction with the RPM Xtra feature.)



Honda CRF450 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 or subtract fuel through the stock injectors. The amount of fuel added or subtracted is determined by the value set below FUEL when Btn is set to TUN Tune. *Note: The Tune feature can only function when the Xtra fuel adjustments are not engaged. (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



Honda CRF450 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	→Stats
MENU	Xtra	# 5.0

Run screen: The Run screen displays live information when the engine is running. Stock injector duty cycle (denoted by a small “s”), auxiliary injector duty cycle (denoted by a small “A”), boost pressure (upper right), engine rpm (lower left), TPS percentage (lower middle) and charge air temperature °F (lower right).

Run	00 _s	00 _A	0.0
0000	tps99		00 _F °

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.

Note: (The left arrow button can be used a capture button if an auxiliary button is not present.)

Cp1	00 _s	00 _A	0.0
0000	tps99		00 _F °

Maximum (MAX) Screens: There are two MAX screens. The first MAX screen displays maximum rpm, stock (Stk) injector duty cycle and auxiliary (Aux) 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	Stk	Aux	Clr
0000	00	00	→ <u>Y</u> N

MAX	PSI	Temp	Clr
	0.0	00	→ <u>Y</u> N



Honda CRF450 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



Honda CRF450 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.

