# QUICK GUIDE

## ENGINE FUEL INJECTION OPTIMIZER

ACCESSORY OPTIMIZE PGM-FI SYSTEM

(MODEL: 3.0)

# 1. INSTALLATION

## 1.1 NOTES IN AFO INSTALLATION FOR PGM-FI HONDA

Connector of HONDA injectors have 02 types are common and special connector *(reverse connector)*, about 90% are common type, only 10% are reverse type.

To determine type for connector, you must plug-in AFO connector to vehicle connector same as the image below. Look at wiring color type:

- If wire color of connector are same side then that is common connector type.

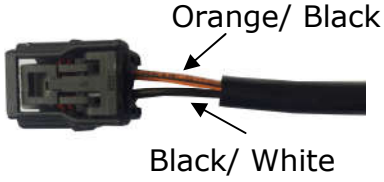
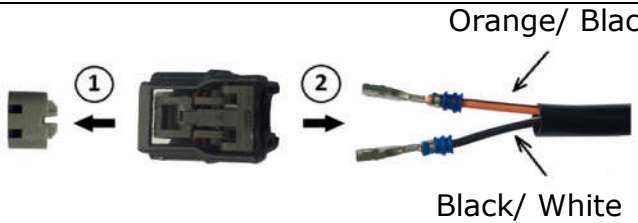

Common connector type of injector

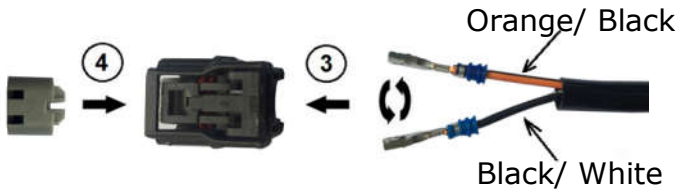
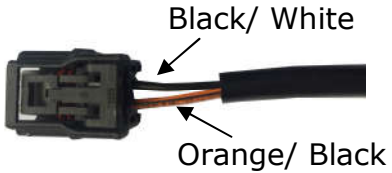
☞ **This case, don't need to change anything in the installation**

- If wire color of connector are reverse then that is special connector type (reverse connector). Look at the image below:


Special/ reverse connector type of injector

☞ **This case, you must invert wires of injector connector on motorbike firstly**

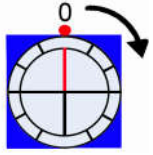
| **STEPS REVERT WIRES OF INJECTOR CONNECTOR ON MOTORBIKE** | |
|---|---|
| Injector connector on motorbike before revert |   |
| Use clamp to remove metal latch (1) and wires of injector connector (2) on motorcycle |   |

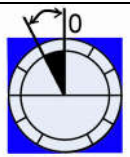
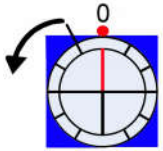
| | |
|---|---|
| - Revert pink/blue wire and black/white wire then plug in them into connector (3)<br>- Plug metal latch (4) |  |
| Injector connector on motorbike after inverted wires |  |

| LIST OF SOME INJECTOR CONNECTOR TYPES | |
|---|---|
| **COMMON CONNECTOR TYPE OF INJECTOR** | **SPECIAL/REVERSE CONNECTOR TYPE OF INJECTOR** |
| AIRBLADE 2009-2010 | AIRBLADE 2011- 2012 |
| AIRBLADE 2013- 2014 | FUTURE X 125 |
| AIRBLADE 2015- 2016 | MSX |
| CRF (Thailand) | SH125/SH150 (Before 2015) |
| CLICK 125I (Thailand) | SH125/SH150 (2016) |
| CZI (Thailand) | |
| FUTURE NEO FI | |

| | |
|---|---|
| FUTURE 125 | |
| LEAD 110 (Before 2012) | |
| LEAD 110 (After 2012) | |
| PCX 2008 2013 | |
| PCX 2016-2016 | |
| PCX 2008 2013 | |
| SCR | |
| SCOOPY | |
| SH300I | |
| SHi Italia | |
| SH 2017 | |
| SH MODE | |
| VISION 2012 | |
| VISION 2013 | |
| VISION 2014 - 2016 | |
| WINNER 150 | |

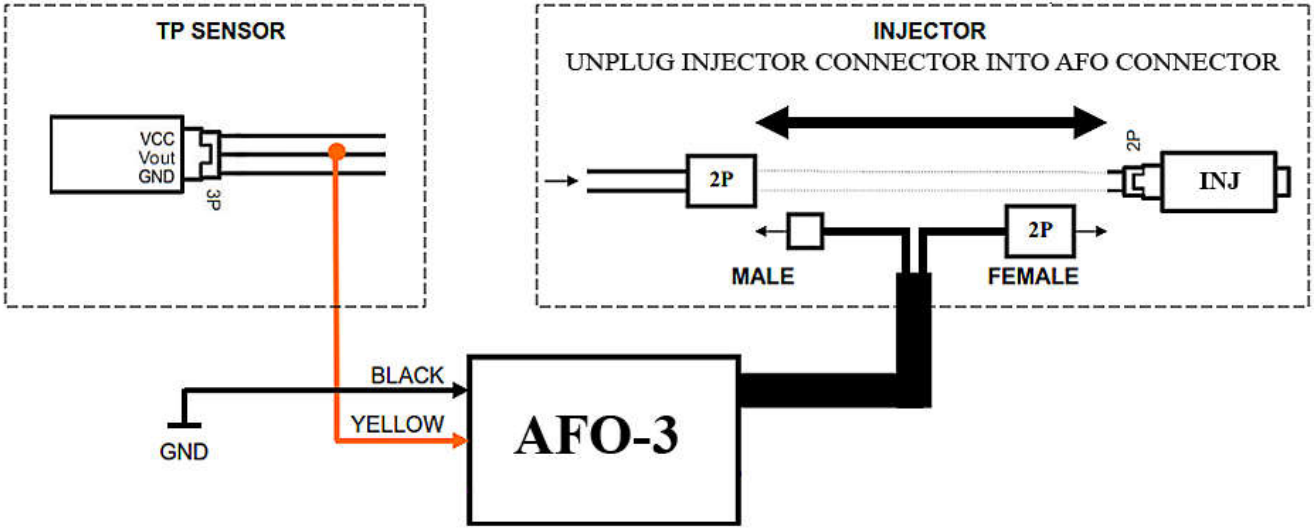
## 1.2 CALIBRATION

| MODE | POSITION OF ADJUSTMENT SCREW | DESCRIPTION |
|---|---|---|
| **MODE 1** *(Default mode)* | Zero position *(0 point)*   | Auto repair weak power fault when cool start and slump accelerator |
| **MODE 2** | From 0 point to on the right *(increasing direction)*   | Increase air/fuel ratio and up engine power |
| **MODE 3** | From 0 point to first bar on the left *(decreasing direction)* | Only perform anti theft function without adjustment and optimum air/fuel ratio |

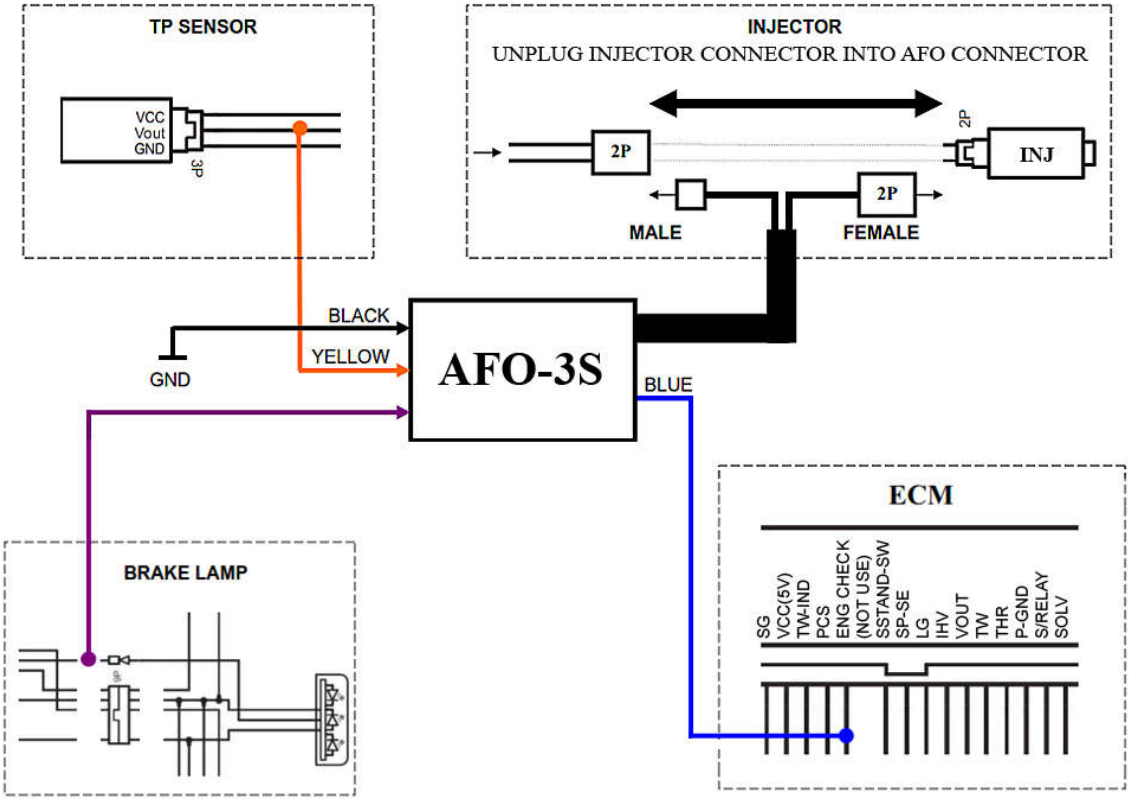
| | | |
|---|---|---|
| |  | |
| **MODE 4** | From first bar on the left decreasing direction to left  | Decrease air/fuel ratio, down engine power but it will be down fuel consumption |

## 1.3 ELECTRICAL WIRING DIAGRAM

### 1.3.1 Electrical wiring diagram for AFO-3



## 1.3.2 Electrical wiring diagram for AFO-3S



## 1.4 AUTO REPAIR WEAK POWER FAULT & SLUMP ACCELERATOR FOR HONDA PGM-FI

- **Step 1:** Turn off ignition key
- **Step 2:** Remove out of the seat, storage box then connect exactly circuit as electrical wiring diagram.
- **Step 3:** Turn the adjustment screw to the zero position if not *(Zero point)*

## 1.5 ADJUST A/F RATIO FOR PGM-FI MOTORBIKE/ SCOOTER

- **Step 1:** Connect exactly circuit as electrical wiring diagram
- **Step 2:** Connect MOTOSCAN to vehicle to check current A/F ratio
- **Step 3:** Adjust
  + **If rich A/F ratio**: Turn the adjustment screw to the left *(anti-clockwise)* begin position 1, 2, 3, 4 or 5 bars to decrease A/F ratio to standard A/F value is 14,7/1.
  + **If lean A/F ratio**: Turn the adjustment screw to the right *(clockwise)* begin position 0, 1, 2, 3, 4 or 5 bars to increase A/F ratio to standard A/F value is 14,7/1 or more.
- **Step 4:** Reconnect MOTOSCAN to motorbike/ Scooter to check result of A/F ratio and ACM SFSTRIM after you adjusted and checked vehicle operating.

## 1.6 CHANGE FUEL CONSUMPTION AND ENGINE POWER OF PGM-FI VEHICLE IN CASE OF YOU HAVE SPECIAL DEMANDS

- **Step 1:** Connect exactly circuit as electrical wiring diagram
- **Step 2:** Connect MOTOSCAN to vehicle to check current A/F ratio
- **Step 3:**

+ **Adjust fuel economy**: Turn the adjustment screw to the left *(anti-clockwise)* begin position 1, 2, 3, 4 or 5 bars to decrease fuel to initial default value.

+ **Adjust to increase engine power**: Turn the adjustment screw to the right *(clockwise)* begin position 0, 1, 2... or 5 bars to increase engine power to initial default value.

**NOTES:**
- Fuel economy can makes weaker engine
- Engine power increasing can consume more fuel
- Each adjust value, you must wait for 10 seconds for update ECM to new value

- **Step 4:** Reconnect MOTOSCAN to motorcycle to check A/F ratio, ECM SFSTRIM then check engine power after adjusting.

## 1.7 INSTALL FOR ANTI-THEFT FUNCTION

(This function supports for AFO-3S)

Connect exactly circuit as electrical wiring diagram

**Impotant notes**: If you use anti-theft function and don't adjust A/F ratio then turn adjustment screw at position from Zero point to first bar of left *(decreasing direction)*

## 1.8 COMPLETE THE INSTALLATION

- Start engine to check changing of engine after installed AFO
- Use plastic cable tie to fix the wire

- Re-install the seat, storage box

## 2. ANTI-THEFT FUNCTION INSTRUCTION

### ☞ IMPORTANT NOTES:

- Each AFO-3S unit is set default security code from manufacturer is "21". When you install AFO-3S, you should change default security code by your private code *(Item 2.2)* to protect motorbike/ scooters. Security code is a two-digit number *(from 10 to 99)*.

- If you forgot security code, you can reset code and create the new security code. *(Reset code is different for each customer).*

- To avoid inconvenience for the user, if you turn off the ignition key after 05 seconds and then turn it on again immediately to start engine then AFO-3S does not require you enter security code because in that situation the AFO-3 will know you are owner of the motorcycle.

- If you are not sure operation steps and status of AFO then you reset system by turning off ignition key and wait for more 05 seconds or more then turn on ignition key.

- If you enter wrong security code or the operations are not successful then you have to wait MIL lamp flashes quickly for 10 times then re-enter security code.

- You should not hold brake too long or enter code too slow. Time for holding brake and entering code does not exceed 4 seconds, if more than 4 seconds AFO will report error and require re-enter code.

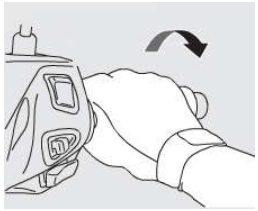
- If MIL flashes continuously every 4 seconds for 1 time then indicate protection mode is active. If MIL does not flash then protection mode is not active.

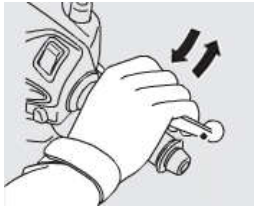
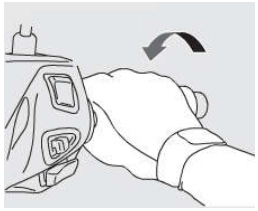
| DESCRIPTION TABLE OF MIL LAMP STATUS | | |
|---|---|---|
| **No.** | **STATUS OF MIL LAMP** | **DESCRIPTION** |
| 1 | MIL flashes 1 short and pause for 4 seconds then repeat continuously like breathing… | Protection mode is active |
| 2 | MIL is ON for 1 second then MIL OFF | Enter correct security code |
| 3 | MIL flashes quickly 10 times and then OFF | Some cases occurs:<br>- Enter wrong security code<br>- Too time to enter security code *(Every time you enter security code is not exceed 4 seconds)*<br>- Brake and hold brake for more than 4 seconds without entering security code |
| 4 | Blinking continuously forever | Protection mode of AFO-3S is active |

| | | |
|---|---|---|
| 5 | When start engine, MILL flashes quickly, continuously until stop engine | Start motorbike/ scooter but do not enter security code |
| 6 | MIL flashes 1, 2, 3 or 4 times and pause then flashes continuously | AFO-3S is changing mode:<br>1 flash – Mode "No protection"<br>2 flashes - Mode "Protection"<br>3 flashes - Mode "Reset security code"<br>4 flashes - Mode "Change security code" |

## 2.1 ENTER SECURITY CODE

Example security code is 21:

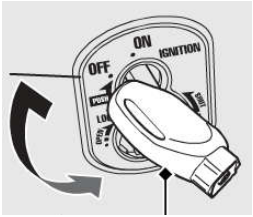
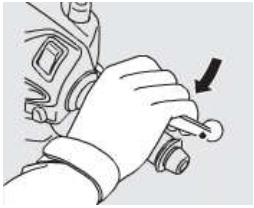
| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| 1 | Brake and release brake 2 times to enter the tenth digit is “2” |  | There is no expression |
| 2 | Open full throttle, keep your hand at this position and do the next step |  | MIL ON |

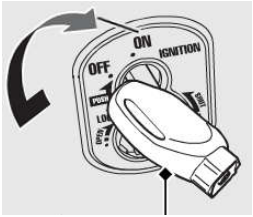
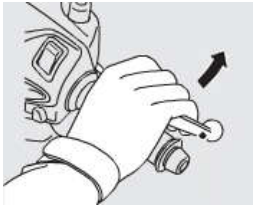
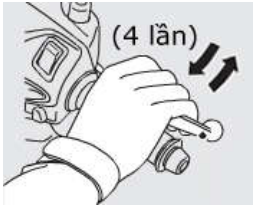
| | | | |
|---|---|---|---|
| 3 | Brake and release brake one time to enter<br>units number<br>*(while still open full throttle)* |  | Like MIL status in the previous step |
| 4 | Close throttle completely |  | MIL OFF |
| 5 | If entering code is successful | | MIL is ON about 1 second then OFF |
| | If entering code is not successful | | MIL flashes quickly 10 times then OFF |

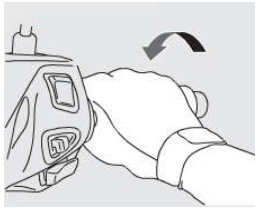
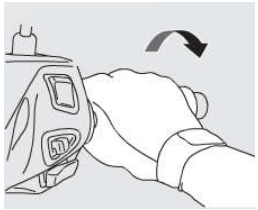
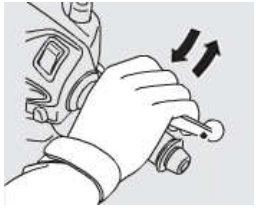
**NOTES:**

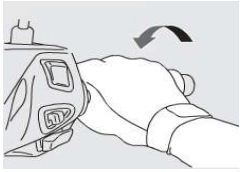
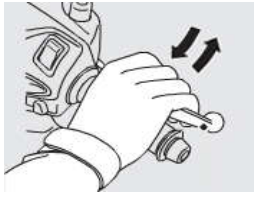
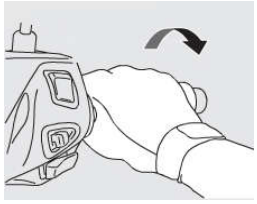
To increase stability and code security, time between brake, release brake or hold brake no more than 4 seconds. If more 4 seconds AFO will not accept, MILL flashes quickly 10 times then turn OFF and require re-enter security code from the first step.

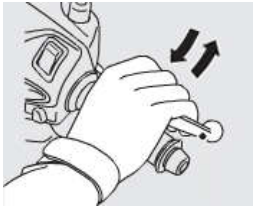
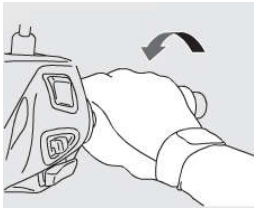
## 2.2 CHANGE SECURITY CODE

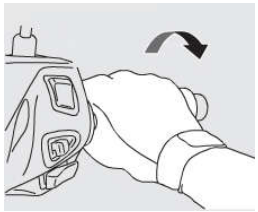
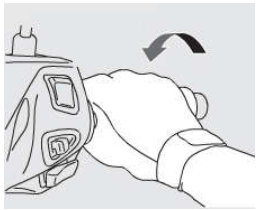
| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| **SELECT SECURITY CODE CHANGING MODE** | | | |
| 1 | Turn ignition key to the OFF position |  | There is no expression |
| 2 | Open full throttle, keep your hand at this position and do the next step |  | Like MIL status in the previous step |

| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| 3 | Turn ignition key to ON position *(while still open full full throttle and hold brake)* |   | MIL ON about 3 seconds and OFF then flashes slowly, continuously |
| 4 | Release brake *(while still open full throttle)* |  | MIL OFF |
| 5 | Brake and release brake 4 times *(while still open full throttle)* |   | Like MIL status in the previous step |

| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| 6 | Close throttle completely |  | MIL flashes 4 times and pause then flashes continuously |
| **ENTER CURRENT SECURITY CODE** | | | |
| 7 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 8 | Brake and release brake times by tenth digit of the old security code<br>*(while still open full throttle)* |  | Like MIL status in the previous step |

| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| 9 | Close throttle completely |  | MIL is ON |
| 10 | Brake and release brake times by units digit of the old security code |  | Like MIL status in the previous step |
| 11 | Open full throttle, keep your hand at this position and do the next step |  | |
| 12 | If entering code is successful then do the next step | | MIL is ON about 1 second then OFF |

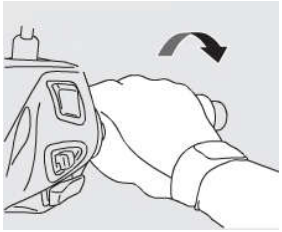
| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| | If you enter wrong code or wrong manipulation then do it again from step 1 | | MIL flashes quickly 10 times then OFF |
| **ENTER A NEW SECURITY CODE** | | | |
| 13 | Brake and release brake times by tens digit of the new security code<br>*(while still open full throttle)* |  | MIL is OFF |
| 14 | Close throttle completely |  | MIL is ON |

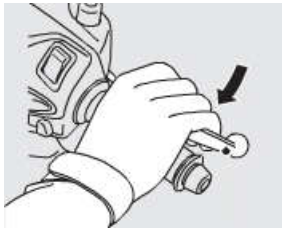
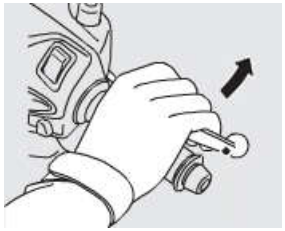
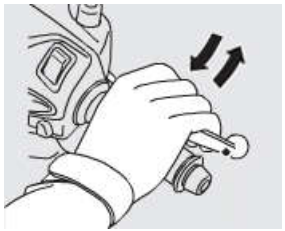
| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| 15 | Brake and release brake times by units digit of the new security code |  | Like MIL status in the previous step |
| 16 | Open full throttle, keep your hand at this position and do the next step |  | MIL ON for 1 second and OFF<br>indicate entering new security code is successful |
| 17 | Close throttle completely |  | MIL flashes 1 short and pause for 4 seconds<br>then repeat continuously like breathing… |

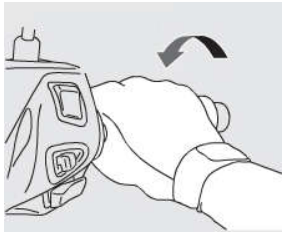
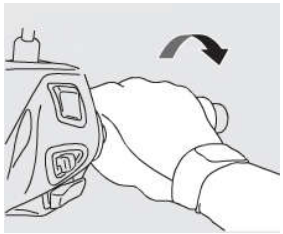
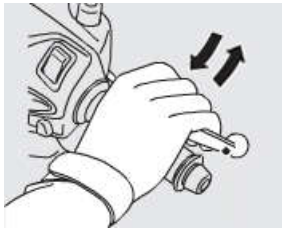
## 3. ADVANCED SETTING

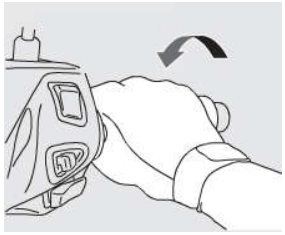
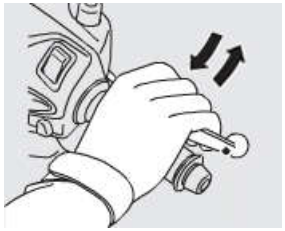
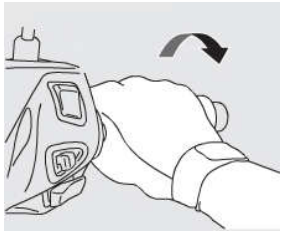
### 3.1 CHANGE MODE FROM SECURITY TO NON-SECURITY

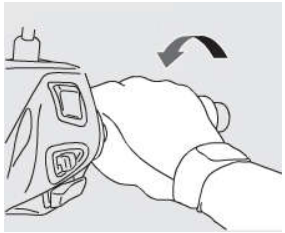
Using when user ignore security mode *(start engine without enter security code)*

| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| **CHANGE MODE FROM SECURITY TO NON-SECURITY** | | | |
| 1 | Determine security mode is enabled on motorbike | | MIL flashes 1 short and pause for 4 seconds then repeat continuously like breathing... |
| 2 | Open full throttle, keep your hand at this position and do the next step |  | Like MIL status in the previous step |

| | | | |
|---|---|---|---|
| 3 | Brake<br>*(while stil open full throttle)* |  | MIL flashes slowly, continuously |
| 4 | Release brake<br>*(while stil open full throttle)* |  | MIL is OFF |
| 5 | Brake and release brake one time<br>*(while stil open full throttle)* |  | Like MIL status in the previous step |

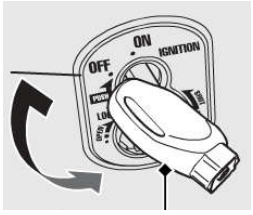
| | | | |
|---|---|---|---|
| 6 | Close throttle completely |  | MIL flashes one time and pause then repeat continuously |
| **ENTER CURRENT SECURITY CODE** | | | |
| 7 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 8 | Brake and release brake times by tens digit of security code *(while stil open full throttle)* |  | Like MIL status in the previous step |

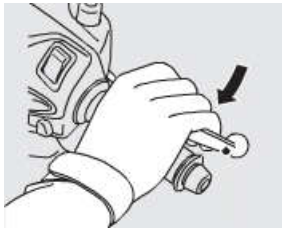
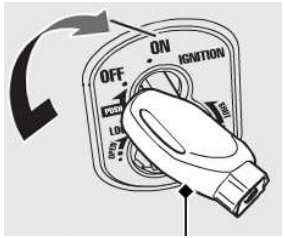
| | | | |
|---|---|---|---|
| 9 | Close throttle completely |  | MIL is ON |
| 10 | Brake and release brake times by units digit of security code |  | Like MIL status in the previous step |
| 11 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 12 | If entering code is successful then do the next step | | MIL is ON about 1 second then OFF |
| | If you enter wrong code or wrong manipulation then do it | | MIL flashes quickly 10 times then OFF |

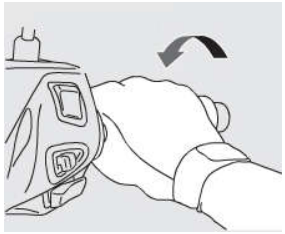
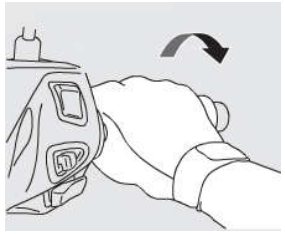
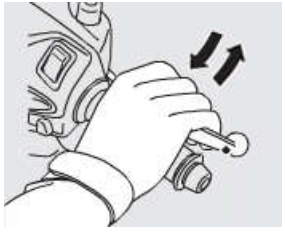
| | | | |
|---|---|---|---|
| | again fom step 1 | | |
| 13 | Close throttle completely |  | MIL is OFF |

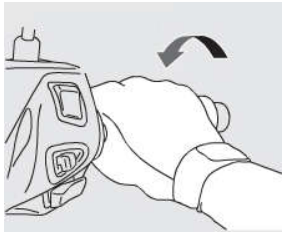
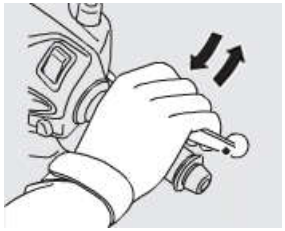
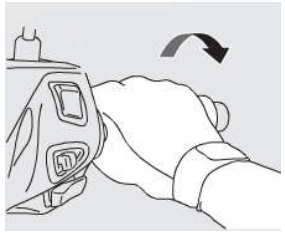
### 3.2 CHANGE MODE FROM NON-SECURITY TO SECURITY

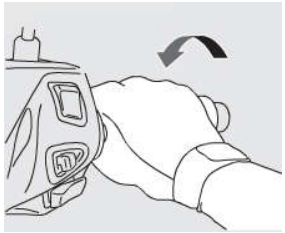
Using when user need to reset security mode *(user must enter security code to start engine)*

| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| **CHANGE MODE FROM NON-SECURITY TO SECURITY** | | | |
| 1 | Turn ignition key to the OFF position |  | There is no expression |

| | | | |
|---|---|---|---|
| 2 | Open full throttle, keep your hand at this position and do the next step |  | There is no expression |
| 3 | Turn ignition key to ON position *(while still open full throttle and hold brake)* |  | MIL ON about 3 seconds and OFF then flashes slowly, continuously |
| 4 | Release brake *(while still open full throttle and hold brake)* | | MIL is OFF |
| 5 | Brake and release brake 2 times *(while still open full throttle and hold brake)* |  | Like MIL status in the previous step |

| | | | |
|---|---|---|---|
| 6 | Close throttle completely |  | MIL flashes 2 times and pase then flashes continuously |
| **ENTER CURRENT SECURITY CODE** | | | |
| 7 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 8 | Brake and release brake times by tens digit of security code *(while stil open full throttle)* |  | Like MIL status in the previous step |

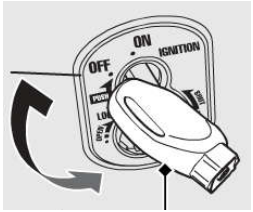
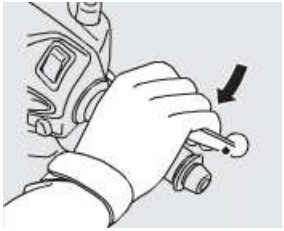
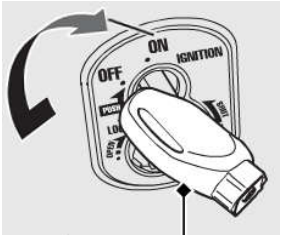
| | | | |
|---|---|---|---|
| 9 | Close throttle completely |  | MIL is ON |
| 10 | Brake and release brake times by units digit of security code |  | Like MIL status in the previous step |
| 11 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 12 | If entering code is successful then do the next step | | MIL is ON about 1 second then OFF |
| | If you enter wrong code or wrong manipulation then do it | | MIL flashes quickly 10 times then OFF |

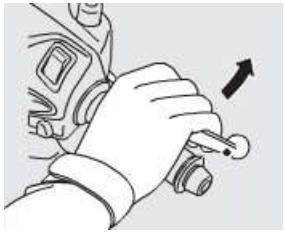
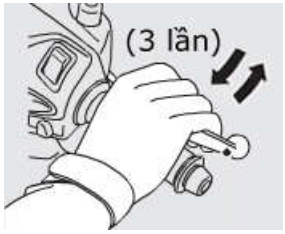
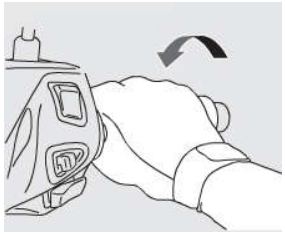
| | | | |
|---|---|---|---|
| | again fom step 1 | | |
| 13 | Close throttle completely |  | MIL flashes 1 short and pause for 4 seconds then repeat continuously like breathing... |

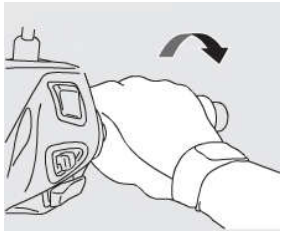
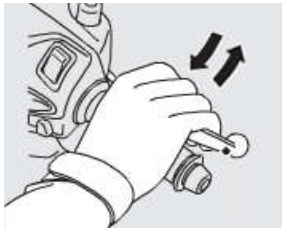
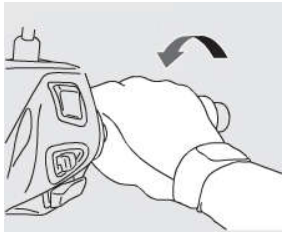
### 3.3 RESET A SECURITY CODE

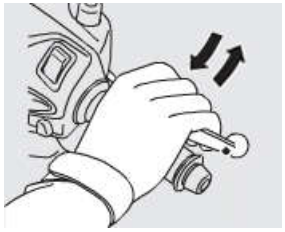
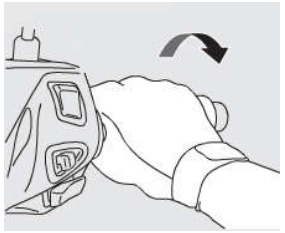
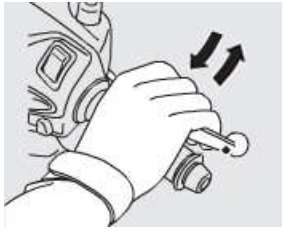
Using when user need to create a new security code when forget the old security code. Reset code is supplied by manufacturer. It is a three-digit number from *(100 to 999)*. If you forget reset code, please contact DTDAuto support.

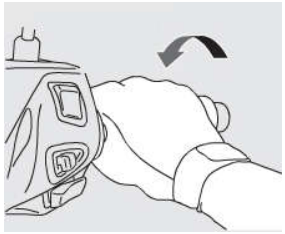
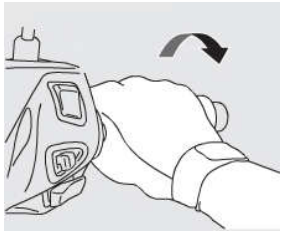
| STEP | DESCRIPTION/ MANIPULATION | IMAGE | STATUS OF MIL LAMP |
|---|---|---|---|
| **SELECT RESET MODE FOR SECURITY CODE** | | | |

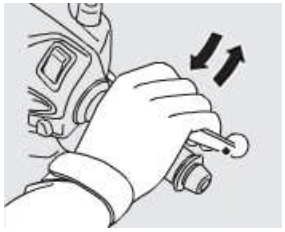
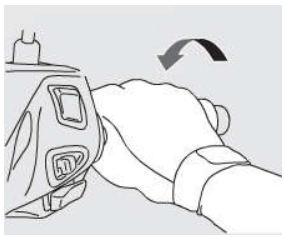
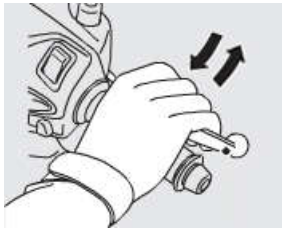
| | | | |
|---|---|---|---|
| 1 | Turn ignition key to the OFF position |  | There is no expression |
| 2 | Open full throttle, keep your hand at this position and do the next step |  | There is no expression |
| 3 | Turn ignition key to the ON position<br>*(while still open full throttle and hold brake)* |  | MIL ON about 3 seconds and OFF then flashes slowly, continuously |

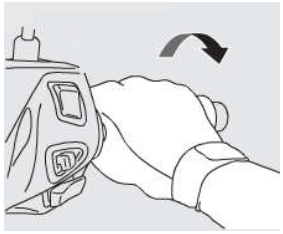
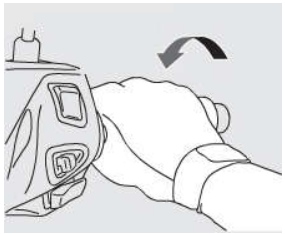
| | | | |
|---|---|---|---|
| 4 | Release brake<br>*(while still open full throttle and hold brake)* |  | MIL is OFF |
| 5 | Brake and release 3 times<br>*(while still open full throttle and hold brake)* |  | Like MIL status in the previous step |
| 6 | Close throttle completely |  | MIL flashes 3 times and pause then flashes continuously |
| **ENTER A RESET CODE** | | | |

| | | | |
|---|---|---|---|
| 7 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 8 | Brake and release brake times by hundreds digit of the reset code<br>*(while stil open full throttle)* |  | Like MIL status in the previous step |
| 9 | Close throttle completely |  | MIL is ON |

| | | | |
|---|---|---|---|
| 10 | Brake and release brake times by tens digit of the reset code |  | Like MIL status in the previous step |
| 11 | Open full throttle, keep your hand at this position and do the next step |  | MIL is OFF |
| 12 | Brake and release brake times by units digit of the reset code *(while stil open full throttle)* |  | Like MIL status in the previous step |

| | | | |
|---|---|---|---|
| 13 | Close throttle completely |  | MIL is ON |
| 14 | If entering code is successful then do the next step | | MIL is ON about 1 second then OFF |
| | If you enter wrong code or wrong manipulation then do it again fom step 1 | | MIL flashes quickly 10 times then OFF |
| **ENTER A NEW SECURITY CODE** | | | |
| 15 | Open full throttle, keep your hand at this position and do the next step |  | Like MIL status in the previous step |

| | | | |
|---|---|---|---|
| 16 | Brake and release brake times by tens digit of the new security code<br>*(while stil open full throttle)* |  | Like MIL status in the previous step |
| 17 | Close throttle completely |  | MIL is ON |
| 18 | Brake and release brake times by units digit of the new security code |  | Like MIL status in the previous step |

| | | | |
|---|---|---|---|
| 19 | Open full throttle, keep your hand at this position and do the next step |  | MIL is ON for 1 second and OFF indicate<br>resetting and changing securitycode is sucessfull |
| 20 | Close throttle completely |  | MIL flashes 1 short and pause for 4 seconds then repeat continuously like breathing... |

**Thanks for your reading !**

# INDEX

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