

TURBO TIMER type 0

INSTRUCTION MANUAL



Pursuing the Ultimate in Engine Performance and Efficiency.
HKS Company Limited

E05131-K00081-00
August, 2010
Ver.3-1.03

1. NOTICE

This manual assumes that you have and know how to use the tools and equipment necessary to safely perform service operations on your vehicle. This manual assumes that you are familiar with typical automotive systems and basic service and repair procedures. Do not attempt to carry out the operations shown in this manual unless these assumptions are correct. Always have access to a factory repair manual. To avoid injury, follow the safety precautions contained in the factory repair manual.

- This manual indicates items that require careful attention in order to install this product safely, and lists precautions to avoid any possible damage and/or accidents.
- This product was designed for and tested on a factory-spec vehicle or a vehicle equipped with other HKS products. Performance and/or safety cannot be guaranteed if this product is installed onto other inapplicable vehicles.
- For any lost, defective and/or damaged parts, contact your retailer/dealer to order.
- HKS will not be held responsible for any damage caused by incorrect installation, mishandling, and/or misuse, nor for damages caused by modifications to or dismantling of this product.
- This product will only operate on a vehicle with DC12V negative ground.
- The specifications of this product are subject to change without notice.
- This manual is subject to be revised without notice.

PRODUCT	TURBO TIMER type-0
USE	Keeps the vehicle idling for a preset period of time after ignition has been turned off.
APPLICATION	DC12V Negative Ground Vehicles.
PART No.	41001-AK009
REMARKS	Some vehicles may require a Key Lock Release Adapter.

2. TABLE OF CONTENTS

1. NOTICE	P1	8. NAMES AND FUNCTIONS	P5
2. TABLE OF CONTENTS	P1	9. OPERATION	P5
3. SAFETY INSTRUCTIONS	P1	10. OPTIONAL PARTS LIST	P7
4. PREFACE	P2	11. TROUBLESHOOTING	P7
5. PARTS LIST	P3	12. FOR SUBSEQUENT OWNERS	P7
6. INSTALLATION	P3	13. PRODUCT SPECIFICATIONS	P8
7. AFTER INSTALLATION	P4	14. INSTRUCTION MANUAL REVISION HISTORY	P8

3. SAFETY INSTRUCTIONS

Warning

- Make sure to work on the vehicle in a well-ventilated area to prevent possible explosion or fires.
- To avoid possible accidents, do not mount the unit in areas where the driver may become distracted during driving.
- Make sure to secure wires routed inside the vehicle to avoid possible accidents where the driver's feet may become caught or tangled in wiring.
- Do not install this product on a 24V vehicle. It may cause a fire.
- Make sure to disconnect the cable from the negative terminal of the battery to avoid possible damage to other electronics parts and/or a fire caused by a short circuit.
- For Nissan automatic transmissions equipped with the shift lock function, do not disengage the shift lock function; removing the key out of the ignition with the vehicle in gear/neutral may lead to serious accidents.
- Properly disconnect all connectors/harnesses by holding the connectors and not the wires. Failure to do so may damage the wires and/or connectors and can lead to shorts.
- Do not operate the Turbo Timer while driving. Always operate the Turbo Timer while the vehicle is parked in a safe location.

Warning

- When the Turbo Timer is operational (timer countdown idle with the ignition off), do not leave the vehicle until after the engine has completely shut off.
- Make sure the parking brake is applied, and the gear selector is in neutral (for MT) or in the Park (P) position (for AT), prior to starting the Turbo Timer to prevent serious accidents.
- Do not operate the Turbo Timer indoors or in poorly-ventilated areas to prevent carbon monoxide poisoning from exhaust gases.
- If any unusual noises, scents, and/or vibrations are noticed while driving, stop using this product and consult your HKS Authorized Dealer immediately.
- If for any reason the engine does not shut off after the timer countdown, turn off the Turbo Timer immediately, or disconnect the harness to prevent possible fires.
- Use this product with a relay capacity of 25A or less. Otherwise, if other electrical equipment (such as power windows) is used while this product is operational, it may cause fire and/or damage to the electrical equipment.

Caution

- Do not install this product by yourself unless you have and know how to use the tools and equipment necessary to safely perform service operations on your vehicle.
- Do not modify, disassemble, and/or repair the product and supplied parts to avoid any damage to the vehicle.
- Handle the parts with extra care at all times.
- Avoid allowing oil and/or water to enter the unit to prevent malfunctions that may cause damage to the engine.
- To avoid possible malfunction and damage to the engine, install the unit away from areas of excessive heat or water/moisture.
- Make sure all connections and wiring are correct to prevent electric shocks, shorts, or damage to the vehicle.
- Do not strip the covers off of wires when using splice connectors.
- Connect the ground wire to the screw that is used for the vehicle's chassis ground.
- For vehicles equipped with an automatic headlight system, make sure it is disabled. The Turbo Timer may conflict with the automatic headlight system if enabled, where the headlights may remain on even after the timer countdown sequence is complete and the engine shuts off.
- If the product or the vehicle with the product does not operate properly, consult your retailer/dealer immediately.

- Daily maintenance of the vehicle is the responsibility of the owner/user.
- For vehicles equipped with a wireless door lock or a power telescopic steering column function, these functions may not be usable with this product.
- Refer to the factory service manual when removing factory parts.
- Do not lose and/or damage any removed factory parts.
- Make sure to use the appropriate tools when tightening all nuts and bolts.
- Make sure not to damage the factory wiring when installing this product.

4. PREFACE

The number one cause of turbo failure is oil "coking". Oil "coking" occurs when a turbocharger is not properly cooled down and the oil that normally lubricates the center cartridge heats up and forms solidified oil deposits. A turbo timer allows an engine to idle for a preset time after the ignition key has been turned to the off position and removed. By allowing a turbocharged engine to idle, oil continues to pass through the turbo until it has cooled down to the point where oil "coking" will not occur, thereby prolonging the life of the turbocharger. The HKS Turbo Timer type-0 has the following functions.

- Turbo Timer function
 - Manual Mode: can be set in increments of 10 seconds from 0 - 10 min.
 - 2 Selectable Timer Countdown Settings: [Manual 1] & [Manual 2]
- Battery Voltage Display / Voltage Warning Function
 - The current battery voltage can be displayed (10 - 16 [V]).
 - The battery voltage peak hold value can be displayed.
- Battery Voltage Peak Hold Display with Warning Function (Max. Value / Min. Value)
 - Will set the warning voltage (10 - 16 [V]).
- Large LCD Display Panel
 - Red LED-backlit LCD, which blinks when the timer countdown or warning function is activated.
- Safety Circuit Function
 - This function prevents the vehicle to be driven after the Turbo Timer countdown has started.

Warning

- If the vehicle is driven after the Turbo Timer countdown has started, the Turbo Timer and engine will automatically shut off. Do not attempt to drive the vehicle in this state.

- DC12V
 - This product operates only on DC12V negative ground vehicles. Do not install on 24V vehicles.

5. PARTS LIST

No.	Description	Qt	Remarks
1	Display Unit	1	
2	Control Unit	1	
3	Parking Brake Wire	1	Gray
4	Double-sided Tape	2	
5	Splice Connector	1	Red
6	Tie Wrap	3	100mm
7	Caution Sheet	1	
8	Instruction Manual	1	
9	Universal Application Harness Manual	1	

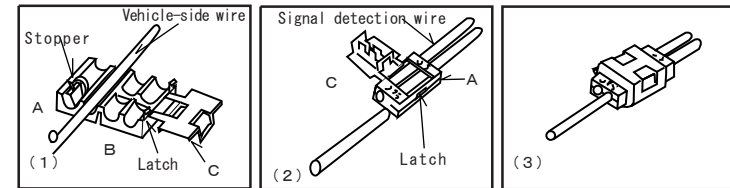
6. INSTALLATION

To install this product, pliers and a screwdriver are required.

Caution

- The safety circuit wiring must be performed, as the Turbo Timer will not operate without it.
- After completing the installation, confirm the safety circuit functions properly.
- Do not connect the black ground wire to the power supply wires (such as IG, +B, and/or ACC). It may cause damage to the Turbo Timer.

6-1. How to use the splice connector

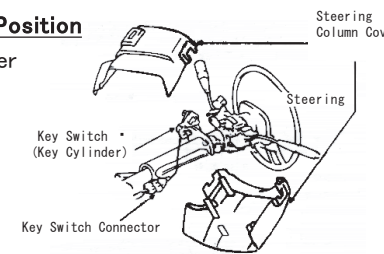


- (1) Place the vehicle-side wire onto side A (without stopper). Fold side B onto side A using pliers to ensure the snap is securely fastened.
- (2) Insert the signal detection wire until it reaches the stopper.
- (3) Fold side C to side A using pliers to ensure the snap is securely fastened.
- (4) Gently pull on the wire to verify the splice connector is completely tight.

6-2. Key Switch Connector Position

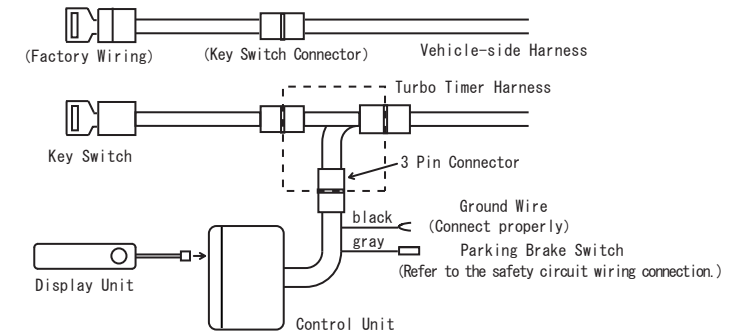
Remove the steering column cover depicted in the illustration.

- Keep the removed screws for reuse.
- Depending on the vehicle, the key switch connector may be directly connected to the key switch.



6-3. Wiring

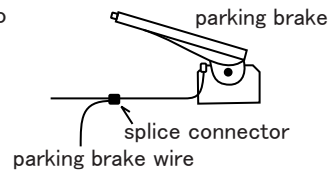
- For proper wiring, use the vehicle specific harness (available separately).
 - To verify the application, contact your HKS Authorized Dealer.
 - If the vehicle specific harness is not available for your vehicle, use the universal application harness available separately.
- (1) Remove the cable from the negative terminal of the battery.
 - (2) Reference the below diagram: Remove the key switch connector as shown in the illustration below; connect the Turbo Timer harness in between the key switch connector.
 - Note: If no Turbo Timer harness is available, connect the following behind the main ignition switch:
 - Red - 12V constant
 - Green - 12V ignition
 - Blue - 12V accessory
 - (3) Connect the 3 pin connector to the Turbo Timer.
 - (4) Connect the black ground wire onto a good chassis ground. To ensure a good ground, make sure there is no paint below the mounting surface (sand if necessary).
 - (5) Connect the display unit connector to the control unit.



6-4. Safety Circuit Wiring Connection

If there is one Parking Brake Wire

- (1) Connect the gray wire from the Turbo Timer to the supplied gray parking brake wire.
- (2) Using the supplied splice connector, connect the supplied gray parking brake wire to the vehicle's parking brake wire.



If there are two Parking Brake Wires

- (1) Connect the gray wire from the Turbo Timer to the supplied gray parking brake wire.
- (2) Turn the key switch on. (Do not start the engine.)
- (3) Using a multi-meter, find the wire that reads 0V when the parking brake is engaged, and 12V when the parking brake is disengaged.
- (4) Using the supplied splice connector, connect the gray parking brake wire to the vehicle's parking brake wire found in (3)

6-5. Mounting the Display Unit and the Control Unit

Warning

- When mounting the display unit and the control unit, make sure the harness and all wires are not twisted, stretched taut, or coming into contact with other vehicle parts. It may cause a malfunction that can damage the vehicle or become a distraction while driving.
- Do not touch or let dust settle on the adhesive surface of the double-sided tape. Do not apply the tape onto wooden or curved surfaces, as well as on fabric. Reuse of the tape may degrade the seal so that it may hold the mounted unit. Dropping the unit may cause a malfunction of the unit and/or damage to the vehicle.

Caution

- Install the unit away from areas of excessive heat, water/moisture, or uneven surfaces to avoid possible malfunction, damage to the engine, and/or deformity of the case.

- (1) Wipe off dust, water, or oil on the mounting surface using a mild detergent where the unit will be placed.
- (2) Use the supplied double-sided tape to mount the unit.
- (3) Secure harnesses using tie wraps in various locations.

6-6. After Installation

- (1) Reinstall all removed parts back to their original positions.
- (2) Reconnect the negative cable onto the battery

7. AFTER INSTALLATION

Caution

- Prior to confirming operation, make sure the foot brake is applied, and the immediate area around the vehicle is clear.

Check the following after the installation process is complete:
7-1. Check the following before starting the engine

Check item	Check
Make sure all bolts and nuts are tightened.	
Make sure all installed components and harnesses do not come in contact with other parts.	
Make sure all harnesses are secured tightly.	
Make sure connectors and harnesses are routed and connected properly.	
Make sure the correct splice connector is used and tightened completely.	
Make sure this product is mounted securely on an area that will not distract the driver while driving.	
Make sure the negative cable terminal is securely attached to the battery.	

7-2. Start the engine and check the following

- Do not raise the engine rpm right after starting the engine. (Let it idle and warm up to standard operating temperature)

Check item	Check
Make sure the installed parts are not coming into contact with each other.	
Make sure there is no excessive stress on harnesses.	
Make sure there are no loose bolts or connections after turning off the engine. Re-tighten as necessary.	

7-3. Safety Circuit Function

Check the following to confirm the Turbo Timer function and the safety circuit operation:

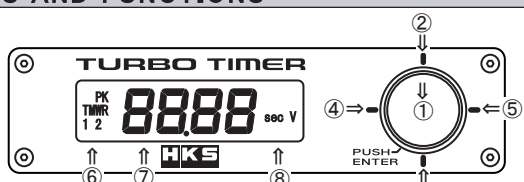
Step 1

- Start the engine. Make sure the ignition key is on.
- Set the manual timer setting to 30 seconds or longer.
- Make sure the parking brake is applied, and step on the foot brake.
- Turn the ignition key off. Verify the Turbo Timer is working.
- After approx. 10 seconds have elapsed, release the parking brake. If the Turbo Timer shuts off immediately and the engine stops when the parking brake is released, the Turbo Timer is installed correctly.

Step 2

- Start the engine. Make sure the ignition key is on.
- Set the manual timer setting to 30 seconds or longer.
- Step on the foot brake, and release the parking brake.
- Turn the ignition key off. If the Turbo Timer shuts off immediately and the engine stops when the parking brake is released, the Turbo Timer is installed correctly.

8. NAMES AND FUNCTIONS



- [Center Key]:** To start and stop while in each mode. Also used to stop the operation. (Press this key to stop the engine while the Turbo Timer is counting down.)
- [UP Key]:** To select and set items in each mode.
- [DOWN Key]:** To select and set items in each mode. (Press and holding this key in main mode to switch to Setup Mode.)
- [LEFT Key]:** To move to each mode. (Press and holding this key in Setup Mode to switch to main mode.)
- [RIGHT Key]:** To move to each mode.
- [Mode Display]:** Displays the current mode.
- [Value Display Section]:** Displays the values.
- [Unit Display Section]:** Displays the unit of measure.

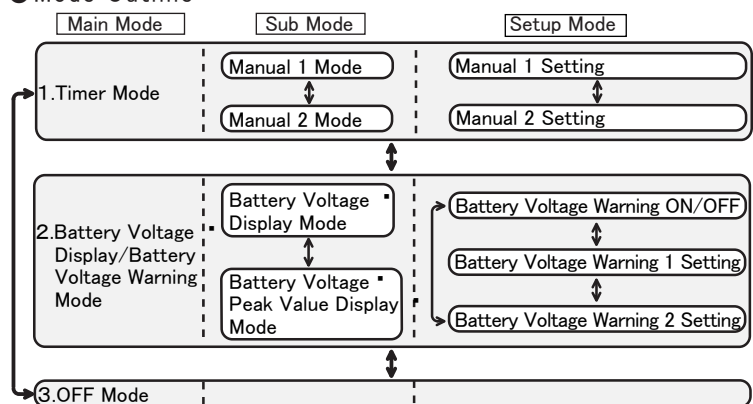
9. OPERATION

All of the following are to be done when the ignition is ON.

Mode Select

There are 3 main modes to the Turbo Timer, which are shown below and in each of these modes, there are sub modes and the Setup Mode. Switching to another mode can be done when the Turbo Timer is not operational (not in countdown).

Mode Outline



- Main Mode:** Switch items by pressing the [left or right key].
- Sub Mode:** Switch items by pressing the [up key].
- Setup Mode:** Switch items by pressing the [left or right key]. Return to main mode by pressing and holding the [left key].

9-1. Timer Mode

This mode is to set the idling countdown timer. Press the [left or right key] to select the timer mode. **TM** will illuminate on the display. Press the [up key] to select from manual 1 mode and manual 2 mode. [Default: Manual 1 Mode]

(1) Setting the Idling Countdown Timer

Under the timer mode, press the [down key] long to move to the Setup Mode.

① Manual Mode 1: **TM1** will illuminate, and the user can set a countdown period between 0-10 minutes. Set the value using the [up or down key] (in increments of 10 sec.) [Default: 30 sec.]



② Manual Mode 2: **TM2** will illuminate, and the user can set a countdown period between 0-10 minutes. Set the value using the [up or down key] (in increments of 10 sec.) [Default: 1 min.]

(2) Timer Activation

- When the ignition is turned OFF, the Turbo Timer will countdown according to the preset time.
- The countdown refreshes every second, accompanied by a blinking backlight and audible beeping taking place simultaneously.
- When the display numbers read "0.00" the engine will shut off along with the display
- Timer OFF function**
- Pressing and holding the [center key] during the countdown will turn the timer OFF, and the engine will shut OFF. (the next time the ignition is turned ON, the Turbo Timer will automatically turn back ON and goes back to the normal setup.)
- Starting Countdown from Other Modes**
- The Turbo Timer will automatically go into timer mode and will begin the countdown when the ignition is turned off, even when in other modes (with the exception of the OFF Mode).

9-2. Battery Voltage Display Mode

This mode displays the current battery voltage and the battery voltage peak hold value. Further, the battery voltage warning value can be set, and the warning function can be turned on or off while in this mode.

(1) Battery Voltage Display



Press the [left or right key] to select the Battery Voltage Display Mode. **V** will illuminate on the display, and the current battery voltage will be displayed.

(2) Battery Voltage Peak Value Display

Press the [up key] to switch the Battery Voltage Display to the Peak Value Display, and vice versa. **PK** will illuminate when the Battery Voltage Peak Value Display is selected. To reset the peak voltage value, press and hold the [up key] while the peak voltage value is displayed. The peak hold value is reset to the current battery voltage.

(3) Battery Voltage Peak Hold Display with Warning Function

- To Switch the Warning Function ON or OFF: While in Battery Voltage Display Mode, press and hold the [down key] to switch to the Setup Mode. Press the [up or down key] to switch the battery voltage warning function ON or OFF.



[Default: OFF]

- To Set the Battery Voltage Warning Value: While in Setup Mode, press the [left or right key] to display the Warning Set Mode. **WR1** will illuminate when Warning 1 is selected and **WR2** will illuminate when Warning 2 is selected.



Warning 1 sets the lowest warning voltage value. The set value will only be saved if it is lower than the Warning 2 setting value. [Default: 10[V]]



Warning 2 sets the highest warning voltage value. The set value will only be saved if it is higher than the Warning 1 setting value. [Default: 16[V]]

Press the [up or down key] to set the battery voltage warning value. (Setting Range: 10-16[V] in intervals of 0.1[V])

- While the warning function is enabled, if the voltage were to exceed Warning 2 setting value or fall below Warning 1 setting value, the red backlight will blink and alerts the driver with a beeping noise. If the voltage were to below 9[V], all displays, the backlight, and the Timer will shut off.
- While the warning function is operational (i.e. blinking display and audible beeping), press the [center key] to turn the function off.

9-3. OFF Mode

While in OFF Mode, all functions and displays and the backlight are turned off, and the Turbo Timer is not active.

- While the OFF Mode is selected, the engine can be shut off without the countdown operation by turning the ignition off.
- If the ignition is turned off while the OFF Mode is selected, the Turbo Timer will remain in OFF Mode when the ignition is turned back on. Therefore, no display will appear, and the backlight will not be turned on.

9-4. Parking Brake

The safety circuit by the parking brake will function as follows

- If the ignition is turned off without the parking brake engaged (not in OFF Mode, countdown must not be at 0.00 sec.), the engine will be shut off without activating the timer countdown operation.
- If the parking brake is disengaged during the timer countdown operation, the countdown will stop, and the engine will be shut off as well.

10. OPTIONAL PARTS LIST

A vehicle-specific harness may be available for your vehicle. Please reference <http://www.hksusa.com/products/?id=837> for details.

11. TROUBLESHOOTING

If this product is not performing properly; check all wiring and connections, referring to the following before contacting your dealer.

Symptoms	Cause	Countermeasure
Display does not power on after the ignition is on.	OFF Mode is selected. Improper harness connection. Improper ground.	Turn on the ignition, and press the [left or right key] to deactivate OFF Mode. Make sure the harness is connected properly. Make sure grounding is done correctly. Remove any paint and/or rust from the grounding surface.
Display remains on despite the ignition being on or off.	Green wire wrongly connected to the vehicle's +B (constant power) wire.	Connect the green wire to the vehicle's IG wire.
Countdown does not start when the ignition is turned off, and the engine is turned off as well.	Countdown time is set to "0.00." Wiring for the safety circuit is not complete. The parking brake is not applied. The battery is losing its charge.	Set the countdown time to longer than 10 sec. Refer to 6-4. Apply the parking brake. Check the battery voltage.
Countdown does start when the ignition is turned off, but the engine is immediately shut off as well.	Improper wiring. Non-HKS harness is connected.	Connect the green wire to the vehicle's IG wire. Use the correct HKS harness.

Warning

- Do not use this product if unusual occurrences should occur. Consult with your HKS Authorized Dealer immediately.

Caution

- Do not try to repair the product yourself. Consult with your HKS Authorized Dealer.
- If any unusual noises, scents, and/or vibrations are noticed while driving, please refer to a factory repair manual.

12. FOR SUBSEQUENT OWNERS

If this product is passed on to a new owner, make sure this instruction manual is included along with the product. Do not uninstall this product by yourself.

Caution

- If this product is removed, make sure all wires from the vehicle are insulated with electrical tape to prevent a possible short.

13. PRODUCT SPECIFICATIONS

Operating Voltage	DC 10-16V
Operating Temperature	-20~60°C (-4 to 140° F)
Maximum Stand-by Voltage	Less than 10 mA
Unit Size - Display Unit	22.5 x 89.5 x 13.0mm
Control Unit	21.0 x 80.0 x 69.0mm

14. INSTRUCTION MANUAL REVISION HISTORY

Ver.	Date	Details
3-1.01	2008/7	1st Edition
3-1.02	2008/8	2nd Edition
3-1.03	2010/8	3rd Edition