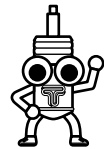


# TEINI®

## Instruction Manual on

# EDFC5



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Controller Unit, Driver Unit, Power Supply Filter and GPS Kit (optional) have labels with serial numbers which must be recorded and stored for future reference. Please refer to the back cover of this manual.

#### FCC COMPLIANCE STATEMENT(United States)

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications made to equipment not expressly approved by TEIN may void the FCC authorization to operate equipment.

### Preface IMPORTANT – Read before continuing

In order to install and use the EDFC5 in good condition, be sure to read this manual in its entirety to obtain a complete understanding of the constructions and functions. Please keep this manual for future reference and transfer it when the product or the vehicle is transferred to a new owner.

TEIN is NOT liable for fatal accidents, injuries, material damages, etc. caused by disregarding the contents in the manual. Please note that TEIN shall not assume ANY costs for removal, installation, relative labor, transportation, repair and loss of time.

Be sure to follow all the instructions, especially the steps with the following symbols as these involve substantial risks.

#### « Meaning of Most Important Abbreviations and Symbols in this Manual »

 **WARNING** : Should a step with this indication be ignored or improperly completed, there is a risk of causing serious material damage, physical injury, an accident or even death.

 **CAUTION** : Should a step with this indication be ignored or improperly completed, there is a possibility, of physical injury or material damage.

#### « Meaning of Abbreviations and Symbols in this Manual »

**CONFIRMATION** : Matter to be confirmed      **REF** : Reference       : Recommended tightening torque

**GPS** : Operations, functions etc., only enabled when optional GPS Kit is installed/used.

- Before installation, verify that all parts are present, in accordance with the contents list (Refer to pg.E4).
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### Precautions

#### <IMPORTANT>The followings should always be followed.



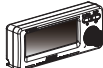
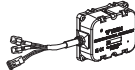
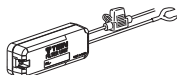
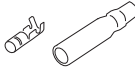
- **Vehicle speeds displayed in EDFC5 are for reference only. Always drive in accordance with vehicle's speedometer.**
- Install EDFC5 properly to comply with road traffic act and other related regulations.
- Never operate the product or stare at LCD while driving as it may violate the law. There is also a possibility of causing an unpredicted accident resulting in an injury or even death.
- User takes full responsibility for the installation. Ensure that you have carefully read and fully understood this Instruction Manual before attempting installation. TEIN recommends that an inexperienced user should only install EDFC5 under qualified supervision.
- Install EDFC5 after the engine, brakes and surrounding parts completely cooled down. Immediately after driving, the engine or the surrounding parts such as piping, brakes, etc. are extremely hot and there are possibilities of serious injuries such as burns.
- Prior to installation, carefully study where and how to install EDFC5 to prevent it from coming off or interfering with normal driving operations. Improper installation may cause damages, interference with driving or accidents.
- When lifting or jacking up the vehicle for installation, always use a stopper or mount axle stands (jack stands) to secure the vehicle.
- Please ensure that there are no loose items in the driver's compartment. If any item should get caught under the brake pedal, it may dangerously cause prevention of brake operation when required.



- EDFC5 runs only on 12V power supply and cannot be used on vehicles that use different voltage such as 24V.
- **Motor and/or driver unit may become hot through operation. If these are installed near the rear seats on minivans etc., watch passengers (especially babies and small children) not to touch them. Allow the motor and driver unit to completely cool off before handling.**
- Never disassemble any EDFC5 components. If disassembled, it may be damaged/broken, may not work properly and will NOT be covered under warranty.
- As EDFC5 is precisely made, never drop or cause shock (blow) to it. If a strong shock (blow) is given, immediately stop using it and inspect it.
- Before installation, confirm that there is no excessive or sharp material on each component.
- To install EDFC5, it is necessary to modify and/or remove parts or electronic apparatus from the vehicle. TEIN takes no responsibility for the damage of such products.
- EDFC5, in rare cases, might interfere with vehicle's other electronic components.
- Never connect the wire conversely or mistake the connection of the wire in order to prevent short-circuiting. If it gets short-circuit, other electronic apparatus may also be damaged.
- Before wiring, be sure to remove the key from the ignition, and disconnect the negative terminal from the battery in order to prevent short-circuiting during installation.
- If the cable is disconnected from the negative terminal of the battery, the memory contents of other electronic devices, such as the clock, car audio, etc. might be deleted. Before installation, confirm the operation of each of these functions and if necessary, please re-set after installation is completed.
- Do NOT damage, press or pull EDFC5 cable to prevent disconnection or electric leakage. Avoid giving cable a strong pull when connecting and/or disconnecting.
- Never insert a flathead screwdriver or other products into the connectors to prevent damages and/or malfunctions.
- When using double-stick tape, please use a neutral detergent to wipe off dust and oil from the surface prior to installation.
- Never install the control unit, the driver unit and/or the power supply filter in the following areas to prevent deformation of the case and/or malfunction.
  - Humid or dusty area
  - Any area with high temperature due to being exposed to direct sunlight or warm air from the heater
- To avoid static damage to the product, be sure to discharge static electricity through other metallic parts etc. before handling the product. Clean the product periodically to prevent dust accumulation.
- Sudden change in temperature might cause dew condensation. Let the product dry out completely before turning it on, as not doing so might cause internal damages.
- If the motor and/or driver unit are installed in a vehicle trunk, make sure these are not damaged by the baggage while driving.
- Keep magnetic cards (credit cards, etc.) away from EDFC5 motor as the motor uses a strong magnet which may damage the card.
- Be sure to tighten each part according to the specified torque listed in this manual.
- Disconnect the motor from the intermediate cables, when you adjust the ride height of the vehicle. It can cause the cable to break from the motor if height is adjusted while still connected.
- NEVER use communication devices and/or electronics, such as cellular phones and PCs, near the controller unit and/or the driver unit. It may cause faulty operation because the product emits weak electromagnetic wave.
- Do NOT damage the thread of the shock absorber piston rod or oscillation parts by directly handling with a tool, giving a shock (blow), dropping or hitting. If the piston rod is damaged, the oil seal may also be damaged, and it could lead to the oil leakage and/or malfunction.
- Daily inspection is driver's responsibility. After installing EDFC5, inspect it periodically to confirm if every part is firmly connected and cleaned. If it is not used for a long period (about one month), confirm if it operates normally before using it.
- When washing the engine room (bay) with steam, be sure not to get EDFC5 motor and/or driver unit wet. If water or oil enters motor and/or driver unit, it may cause damage and user should cease use until it is inspected.
- Clean EDFC5 with a dry cloth. If it is dirty, wipe with a well-wrung cloth. Never use benzene or thinner, which may deteriorate the paint on the case.
- When disposing the product, consult your local government or waste disposers.
- Do NOT modify EDFC5 components, except as instructed in this manual or by TEIN, as it may cause performance decrement and/or breakage.
- NEVER drive radically right after installing EDFC5.

## List of Contents

## ● Controller Kit (Part Number EDK04-R6655)

| Description                                                 |                                                                                     | Qty/Kit | Part Number |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|-------------|
| Controller Unit                                             |    | 1       | —           |
| Driver Unit                                                 |    | 2       | EDC01-R6654 |
| Motor Cable                                                 |    | 4       | EDC01-P8026 |
| Power Supply Filter                                         |    | 1       | EDC01-P8061 |
| Driver Power Cable (2m)                                     |    | 1       | EDC01-P8024 |
| Driver Power Cable (LONG 5m)                                |    | 1       | EDC01-P8025 |
| Signal Converter                                            |    | 1       | EDC01-Q0351 |
| Wire (Orange) For connecting to vehicle's speed signal line |                                                                                     | 1       |             |
| Wire (Blue) For connecting to external input 1              |                                                                                     | 1       |             |
| Wire (Green) For connecting to external input 2             |                                                                                     | 1       |             |
| Cable Tie                                                   |  | 10      | EDC02-P8023 |
| Plug                                                        |  | 2       |             |
| Plug Receptacle                                             |  | 2       |             |
| Spade Terminal                                              |  | 2       |             |
| Branch Connector ☆                                          |  | 6       |             |
| Double-Stick Tape                                           |                                                                                     | 1       | —           |
| EDFC Hex Bolt (M6)                                          |  | 4       | SAP44-P8463 |
| Instruction Manual (this manual)                            |                                                                                     | 1       | —           |

Note: For most types of shock absorbers, a set screw has to be replaced with EDFC Hex Bolt (M6) included in EDFC5 kit. Be sure to replace all screws. Not doing so might have an adverse impact on the damping force adjustment mechanism. For details, please refer to Pg.E15.

Signal Converter Kit (for replacement etc) includes 3 Branch Connectors marked with ☆.

## List of Contents

## ●GPS Kit (sold separately) (Part Number EDK07-P8022)

| Description                                                                                | Qty/Kit | Part Number |
|--------------------------------------------------------------------------------------------|---------|-------------|
| GPS Unit  | 1       | —           |
| Double-Stick Tape                                                                          | 1       | —           |

## ●Motor Kit (sold separately)

| Description<br>Part Number                     | Motor Kit Part No. |             |             |             |             |             |
|------------------------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
|                                                | EDK05-10100        | EDK05-10120 | EDK05-10140 | EDK05-12120 | EDK05-12140 | EDK05-14140 |
| Motor with rubber cover (M10)<br>EDC01-K1466-1 | 4                  | 2           | 2           | —           | —           | —           |
| Motor with rubber cover (M12)<br>EDC01-K1466-2 | —                  | 2           | —           | 4           | 2           | —           |
| Motor with rubber cover (M14)<br>EDC01-K1466-3 | —                  | —           | 2           | —           | 2           | 4           |
| 8mm Spanner<br>SST01-F1126                     | 1                  |             |             |             |             |             |
| Cable Tie                                      | 4                  |             |             |             |             |             |
| Threadlocker                                   | 1                  |             |             |             |             |             |
| Grease                                         | 1                  |             |             |             |             |             |

\* Number indicates the quantity of each content in the kit.

【Threadlocker and Grease】 (Included in Motor Kit (sold separately))



## WARNING

- Should eye contact occur, flush eyes with plenty of water. NEVER wipe or rub eyes. Seek medical attention.
- Keep out of reach of children.
- Avoid ingestion.



## CAUTION

- Avoid contact with skin, as it may cause skin irritation.
- In case of skin contact, wipe off immediately and wash away with soap and water.
- Never use for purposes other than what's mentioned in this manual.
- Never use near open flames or other source of ignition.
- Keep away from direct sunlight.

## REF

- When threadlocker or grease soaks into clothing, they cannot be removed.

## Description of Threadlocker

Name of Article: Anaerobic adhesive agent

Application: Screw slack prevention

Component: Synthetic resin (100%)

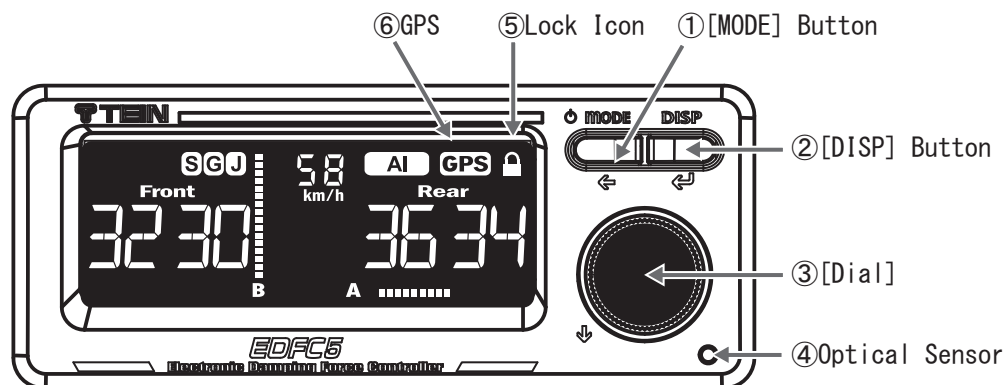
Net Volume: 3ml

- The shape shown in illustration may differ from the actual product.

## Name and Function of Each Part

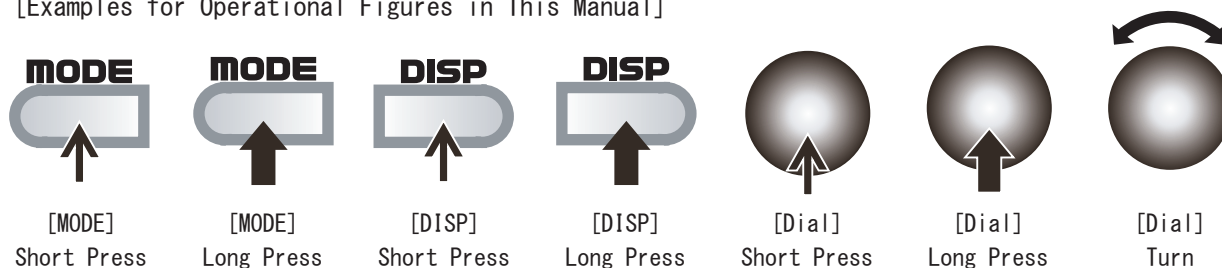
**【Controller】** All the commands to adjust damping force (to control motors) are sent out from this controller. LCD screen shows damping force levels and various information. Buttons and a dial on the right are used to adjust settings, check status, etc. The controller has built-in G-sensor and optical sensor.

Front Face

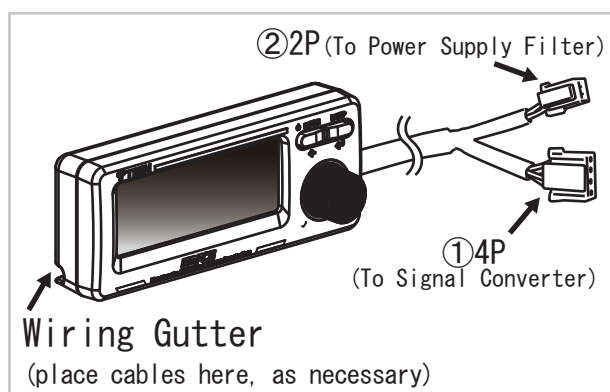


- ① [MODE] Button : For switching control modes and returning to the previous menu
- ② [DISP] Button : For switching displays and for completing the setting operation
- ③ [Dial] : Turn to select setting items and press to confirm.
- ④ Optical Sensor: For Automatic Dimmer Function. (For settings, refer to pg.E44)
- ⑤ Lock : When this symbol illuminates, operation is locked. (See pg.E27 to cancel.)
- ⑥ GPS : "GPS" icon comes ON when GPS unit is active and blinks if inactive.

[Examples for Operational Figures in This Manual]



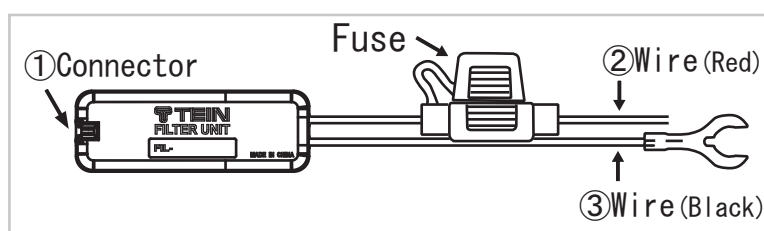
**【Controller Wiring】** To be connected to the power supply filter and the optional GPS kit. **GPS**



- ① 4P Connector : For connecting to the signal converter
- ② 2P Connector : For connecting to the power supply filter

**CAUTION** Handle 2P connector with extra care and avoid applying excessive force.  
**REF** Use a wiring gutter on the back to put cables as necessary.

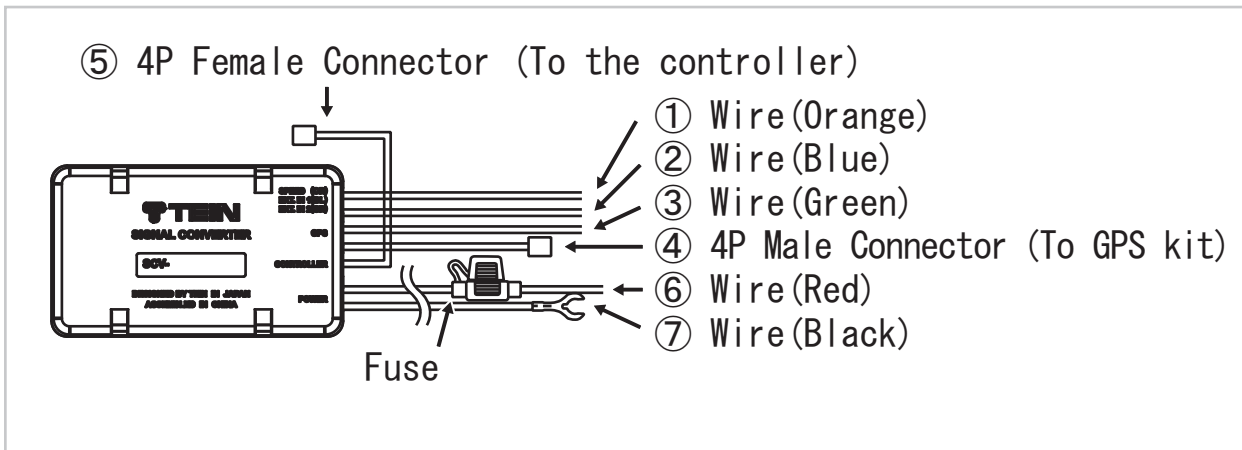
**【Power Supply Filter】** Protection circuit to be placed in between the controller / GPS kit and the power supply.



- ① Connector ... For connecting to the controller
- ② Wire (red) ... For connecting to the accessory power supply
- ③ Wire (black) ... For grounding

## Name and Function of Each Part

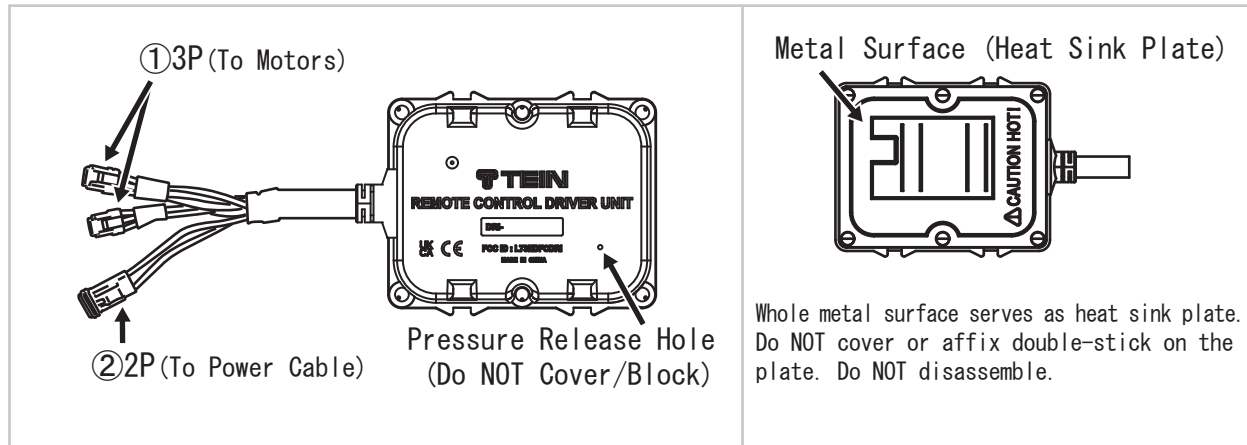
**【Signal Converter】** This converter unit receives and processes vehicle speed signal and 2 additional external signals, then send such data to the controller.



- ① Wire (Orange) ..... For connecting to vehicle's speed signal line
- ② Wire (Blue) ..... For connecting to external input 1
- ③ Wire (Green) ..... For connecting to external input 2
- ④ 4P Male Connector ..... For connecting to optional GPS Kit
- ⑤ 4P Female Connector ..... For connecting to the controller
- ⑥ Wire (Red) ..... For connecting to the accessory power supply
- ⑦ Wire (Black) ..... For grounding

⚠ **CAUTION** Avoid applying excessive force to wirings.

**【Driver Unit】** Driver units receive wireless signals from the controller and activate the motors accordingly. Each driver unit comes with unique ID. Driver units also collect information from the motors and feed back to the controller.



- ① 3P Connector x2 For connecting to the right and left EDFC motors.
- ② 2P Connector For connecting to the power cable included in the kit.

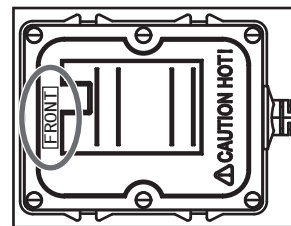
⚠ **CAUTION** Do NOT put double-stick tape on the outer metal surface. The tape may come off because of high temperature.

The small hole on the surface with "TEIN" logo is to release pressure. Do NOT cover the hole when installing.

**REF** Take a note of driver IDs next page. You will need these for setup.

# Name and Function of Each Part

Driver units have been paired (identified) with the controller at the time of shipment. For identification, the one paired for front side has a "FRONT" label on the metal surface. Another is paired for rear and is without such label. (See the diagram to the right.)



**Before installing the driver units, record the positions (front or rear), serial numbers and motor positions (right or left / Ch1 or Ch2) in the spaces provided below.** Such information is required for resetting and troubleshooting.

\* "Ch1" or "Ch2" is marked on cable tag of driver units connected to motors.

Write which motor the channel is connected to.

For dampers with simultaneous compression/rebound adjustment, use Ch1 on left side and Ch2 on right.

Record which motors are connected to which channels, in order to easily confirm on the controller which motor(s) is/are making an error.

e.g.1: For dampers with simultaneous compression/rebound adjustment (1 motor for 1 shock absorber)

→ Write "right (R)" or "left (L)"

e.g.2: For dampers with separate comp./rebound adjustment (2 motors for 1 shock absorber)

→ Write "R-Comp.", "R-Rebound", "L-Comp." or "L-Rebound"

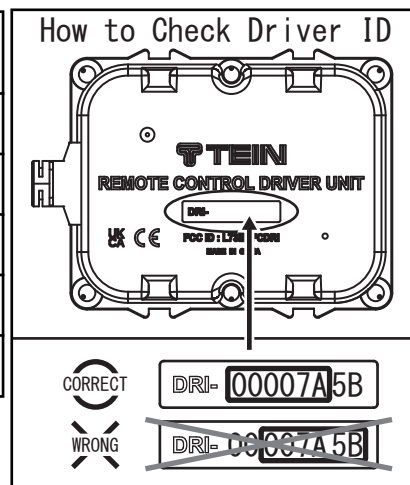
Six digits from the left following "DRI-" of serial no. are Driver ID.

(Combination of numbers and letters A to F)

| MEMO    | Serial Numbers |   |   |   |   |   |     |   | Ft or Rr Damper | Ch1 | Ch2 |
|---------|----------------|---|---|---|---|---|-----|---|-----------------|-----|-----|
|         | ID             |   |   |   |   |   | — — |   |                 |     |     |
| Sample  | 0              | 0 | 0 | 0 | 7 | A | 5   | B | Ft              | L   | R   |
| Driver1 |                |   |   |   |   |   |     |   |                 |     |     |
| Driver2 |                |   |   |   |   |   |     |   |                 |     |     |
| Driver3 |                |   |   |   |   |   |     |   |                 |     |     |
| Driver4 |                |   |   |   |   |   |     |   |                 |     |     |

\* Write "Ft" or "Rr" damper for which damper each driver unit is used.

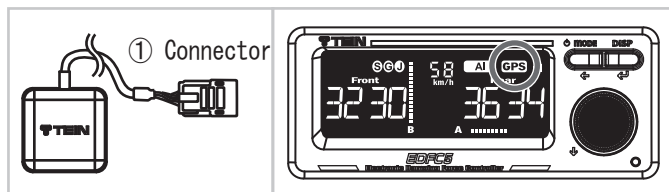
\* For individual comp./rebound adjustment, 1 driver unit can control 2 motors (comp & rebound) on 1 shock absorber. (Refer to pg.E49 Table 1)



## 【GPS Kit】Optional

GPS unit determines its position and calculates vehicle speed based on the information received from the satellites. Also, such information is used for automatic damping force control and for display of location information.

**GPS**



① Connector : For connecting to signal converter  
After turning on the power, wait until GPS unit receives valid signals to move the vehicle (GPS lamp will change from blinking to ON).

- REF**
- GPS unit needs to recognize at least four valid signals from the satellites to start working and this usually takes 30 seconds to 1 minute after the power is turned on. If the vehicle moves before receiving enough satellite signals, it may take longer to recognize.
  - Depending on locations/circumstances, GPS signals may be weak or unavailable.
  - GPS (Global Positioning System) is a space-based satellite navigation system that provides the location information on the earth. With GPS unit installed, the vehicle position can be calculated and used for automatic damping force control and for various display options.

## Specifications

- Name of Product : EDFC5 (Electronic Damping Force Controller FIVE)
- Application : Controlling the damping force from the driver's seat
- Vehicle to be installed : The vehicles specified by TEIN and the vehicles equipped with shock absorbers specified by TEIN (negative ground 12V DC).
- Conditions : Operation while the vehicle is stopped
- Power Consumption (Controller) :
  - accessory power supply OFF: 0mA
  - accessory power supply ON (w/o GPS Kit): 50mA
  - accessory power supply ON (w GPS Kit): 120mA
- Power Consumption (Per one Driver Unit)
  - when motors are operating: 3A
  - standby, if connected to constant : 1.5mA

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## Limited Warranty

### [Limited Warranty]

1. Subject to the terms of the Limited Warranty set forth below, TEIN warrants that EDF05 for the time period stated below to the original purchaser for the use against defects in material and/or workmanship, when installed to and used on the passenger vehicles according to instructions, warnings and cautions described in this manual and under normal operating conditions. If the defect is found under such conditions, TEIN shall repair or replace the product free of charge. With the registering of the product, issuing of the Warranty Certificate shall not in any way limit the legal right of the purchaser. This Limited Warranty is void if any of the exemptions set for the below applies even within the warranty period stated below.
2. Though all the possible measures taken, TEIN assumes NO responsibility for any clerical error, including but not limited to misprinting and/or omission, in the contents of the catalogs published by TEIN.
3. TEIN reserves the right to revise the Limited Warranty without notice whenever the need arise. Should such revision is made, TEIN shall provide the Limited Warranty to the purchaser according to the revised terms.
4. TEIN, in any event, shall not be held liable to the purchaser, for economic loss, compensatory, incidental, consequential or punitive damages for lost profits, down-time, lost production, or defects in purchaser's material or workmanship and/or for labor or shipping charges, arising directly or indirectly from the use of the product. including but not limited to functional failures in other electronic appliances, fires and other accidents.

### [Terms and Conditions]

Provided that the product is installed and used under the normal condition, TEIN shall repair or replace the product free of charge if the defect is found.

1. Terms: For the period of one (1) year from the date of purchase
2. The product shall NOT be covered by the warranty if any of the conditions set forth hereunder applies.

### [Disclaimer – the product may be repaired for a fee, if requested]

- \* The product is reformed or modified in any way, by the purchaser, the installer or the workshop.
- \* Damage or defect, caused directly or indirectly by dropping the product, accident, natural disaster, abnormal voltage and/or the use of power not specified by TEIN. Deformation of controller and/or LCD failure, caused directly or indirectly by exposure to direct sunlight.
- \* Damage or defect caused during installation and/or removal process.
- \* The product is installed or used incorrectly or instructions and warnings are ignored or violated.
- \* Damage or defect, arising from the combined use of the product with the other manufacture's product(s).
- \* Work or job, including but not limited to the performance test of the product, requested by the purchaser.
- \* Damage or defect caused by rust and/or corrosion, due to contact with salt water, snow melting agent and such.
- \* Damage, defect or deterioration, after the expiration of the warranty term.

### [Exclusions – the warranty is void or not applicable]

- \* Unavoidable noise due to the characteristic(s) of the product, including but not limited to the sound generated by the motor.
- \* The product is used for off-road purposes and/or racing type competitions or activities.
- \* The product is not registered. (The purchaser cannot provide the warranty certificate.)
- \* Difference from newer TEIN products, due to product improvements.
- \* Economic loss, compensatory, incidental, consequential or punitive damages for lost profits, down-time, lost production, or defects in purchaser's material or workmanship and/or for labor or shipping charges, arising directly or indirectly from the use of the product.
- \* Damage to or interference with the motor, arising from the combined use of the product with the other manufacturer's bonnet/hood and/or strut tower bar(s).
- \* Damage or defect, due to over-tightening of motor, at above the specified torque.
- \* Clerical error, including but not limited to misprinting and/or omission, in the contents of the catalogs or manuals published by TEIN.
- \* The terms and conditions of the warranty are no longer effective, due to the revision made by TEIN.

## Important Notices to Read Before Use

To get started with the basic functions, follow the below instructions; "Check Installation" and "Set Up G-Sensor". To use advanced features (use with separate compression/rebound adjustable dampers such as Super Racing Damper, control front dampers only, etc.), please refer to Pg.E47~51 for "Changing Basic Settings".

### Check Installation

#### (1) Connecting to Power Supply

##### ■Power Supply Filter (for Controller & GPS)

Be sure to connect to "accessory power supply".

Connecting to a constant power supply will cause the battery to run out in a short period of time.

Please refer to Pg.E6,E19 of Instruction Manual for more details.

##### ■Front/Rear Driver Units

Can be connected either directly to the battery (constant power supply) or with accessory power supply (comes on when the key is in accessory position).

#### (2) Confirming Front / Rear Driver Unit Configuration

2 driver units included in the kit are preassigned for front (DR1) and rear (DR2) at the time of the shipment. The unit with "FRONT" label is preassigned for front and the other one without the label is for rear.

Refer to pg.E48 to confirm which unit is paired with which side, if necessary.

Improper installation of the driver units can lead to overheating and may cause an error and/or a malfunction.

Do NOT cover or block the metal surface and the pressure release hole. Keep away from the heat.

(Refer to pg.E22 for detailed instructions.)

#### (3) Installing Strut Kit (if applicable) (Refer to pg.E23~26 for details.)

#### (4) Installing Motors and EDFC Hex Bolt (details on pg. E15~16)

If the EDFC motor goes directly onto the top of the piston rod (applies in most cases), replace the damper's original black set screw with the EDFC Hex Bolt. For dampers with the click knob attached to the side, check the shape of inner parts to determine if such replacement is required or not. (Refer to Figure 4 on pg.E15)

The EDFC Hex Bolt must replace the black set screw both when installing a new product, as well as when upgrading from EDFC. Remove the black generic set screw from the top of the piston rod, and insert the EDFC Hex Bolt instead.

Not doing so might result in damage to and/or failure of dampers and EDFC5.

### How to Set Vehicle Speed Pulse

#### (5) How to Set Vehicle Speed Pulse

Be sure to preform this procedure, when the system is connected to the vehicle's speed signal line. If not, the speed-sensitive automatic adjustment based on the vehicle's speed pulse does NOT work.

This procedure is not required if the system is not connected to the vehicle's speed signal line.

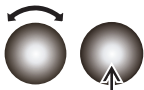
When using the speed data from the GPS kit, turn OFF the vehicle speed signal (Refer to pg. E42).

#### How to Set Vehicle Speed Pulse

**SPEED** : Set the vehicle's pulse frequency into the system. This procedure is not required if the system is not connected to the vehicle's speed signal line.

① To choose from the preset options.

Long-press [DISP] and then turn [Dial], to display "SPEED" on screen.

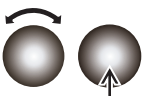
|   | Setting | Display                                                                             | Operation                                                                           | Instruction                                                                    | Available Options                     | Default |
|---|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------|---------|
| 1 |         |  |  | [Dial] Short press                                                             |                                       |         |
| 2 |         |  |  | Turn [Dial] to select from the preset numbers<br>Short press [Dial] to confirm | 2, 4, 8, 10,<br>16, 25, *,<br>BY DIST | 4       |

**REF** For Japanese vehicle models, most Nissan models use 2 and others use 4 (except some models).

## Important Notices to Read Before Use

② To input the number manually.

Select '\*' in the step 2 of the previous procedure.

|   | Setting | Display    | Operation                                                                         | Instruction                                                | Available Options | Default |
|---|---------|------------|-----------------------------------------------------------------------------------|------------------------------------------------------------|-------------------|---------|
| 1 |         | BY PULSE   |  | [Dial] Short press                                         |                   |         |
| 2 |         | BY PULSE 4 |  | Turn [Dial] to select "*"<br>Short press [Dial] to confirm | 1~50              | 4       |

③ To let the system calculate the frequency by driving 1km

Select 'BY DIST' in the step 2 of the previous procedure.

|   | Setting | Display             | Operation                                                                           | Instruction                                                                                                    | Available Options | Default |
|---|---------|---------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------|---------|
| 1 |         | BY DIST             |    | Turn [Dial] to select 'BY DIST'<br>Short press [Dial] to confirm                                               |                   |         |
| 2 |         | RUN 1KM             |                                                                                     | Start the vehicle                                                                                              | 0~50              | 4       |
| 3 |         | AT 1KM<br>PUSH DIAL |                                                                                     | At 1km, short press [Dial]                                                                                     |                   |         |
| 4 |         | DIST OK             |  | Short press [Dial] to confirm                                                                                  |                   |         |
| 5 |         | ERROR               |                                                                                     | If the process fails, "ERROR"<br>will be shown on screen for<br>5 seconds and the system<br>returns to step 1. |                   |         |

**Set Up G-Sensor** (Before performing these procedures, install the controller securely to the vehicle.)

### (6) Correcting G-Force Direction (Calibrating/Recognizing Installation Angle of Controller)

This procedure is required for G-actuated automatic adjustment feature to work properly. (Refer to pg.E44)

| Display     | Operation                                                                           | Instruction                                                                                                        |
|-------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|             |  | LONG press [DISP] to enter the setting menu.                                                                       |
| G BAR OFF   |  | Turn [Dial] to select "G INIT" menu.<br>"G BAR" => "G SCALE 0.3G" => "VOL1" ==> "G INIT"                           |
| G INIT      |  | Short press [Dial] to confirm<br>"INIT" = Initialization                                                           |
| G PUSH DIAL |  | When "G PUSH / DIAL" is displayed, SHORT press [DIAL].                                                             |
| G STAND BY  |  | NO action required. (Wait until the next step to move the vehicle).                                                |
| G RUN       |                                                                                     | When the display turns to "G RUN" and the beeper sounds, move the vehicle straight forward gradually accelerating. |
| G STOP      |                                                                                     | When the display turns to "G STOP" and the beeper sounds, stop the vehicle.*1                                      |
| G SET OK    |  | When the display turns to "G SET OK",<br>SHORT press [Dial] to complete.                                           |

\*1 If "STOP" does not show up, it may be due to poor acceleration. Confirm the safety of the surroundings and accelerate bit strongly.

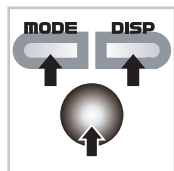
## Important Notices to Read Before Use

If using with speed unit of km/h and 16-level adjustment mode, skip this page.

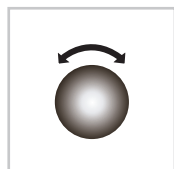
Follow the procedures below to change speed unit (km/h or MPH) and damping force adjustment levels (16, 32, 64 or 96 levels).

When these settings are changed, all damping force settings entered into memory are reset to the factory default (refer to pg.E30, 33, 34 & 37). It is recommended to perform the below procedures before changing other parameters.

### • How to Change Basic Settings



- Long-press [MODE] + [DISP] + [Dial] simultaneously to enter the setting menu.



- Turn [Dial] to select from the following setting menus; (Detailed explanations for ③ & ④ are mentioned later in this manual.)

- ① Vehicle speed unit
- ② Damping force adjustment mode
- ③ Driver mode .....pg. E49
- ④ Driver unit .....pg. E50~51



- Short-press [MODE] to exit the setting menu

## ①Speed Unit – Selecting/Setting Speed & Distance Units (SPEED)

Change the speed and distance units to be shown on the screen and used for calculation.

km/h => speed km/h / distance km

MPH => speed MPH / distance mi

|   | Display               | Operation | Instruction                                            | Available Options                             | Default |
|---|-----------------------|-----------|--------------------------------------------------------|-----------------------------------------------|---------|
| 1 | SPEED <sup>km/h</sup> |           | Turn [Dial] to select                                  | SPEED<br>CTRL<br>STEP<br>DR MODE<br>DR ASSIGN |         |
| 2 | SPEED <sup>km/h</sup> |           | Short press [Dial] to confirm                          |                                               |         |
| 3 | SPEED <sup>km/h</sup> |           | Turn [Dial] to select<br>Short press [Dial] to confirm | MPH<br>km/h                                   | km/h    |

## ②How to Switch Control Method in Manual Mode <Front/Rear Separate or Four-Wheel Independent (CTRL)>

In manual mode, you can switch control method from the followings.

F/R: To control front and rear separately (left and right are set to the same level).

4WH: To control all four suspensions separately

Four-wheel independent control applies if/when the lateral G-actuated adjustment is in use, even when the method is set to F/R.

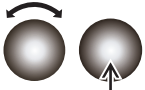
|   | Display               | Operation | Instruction                                            | Available Options                             | Default |
|---|-----------------------|-----------|--------------------------------------------------------|-----------------------------------------------|---------|
| 1 | SPEED <sup>km/h</sup> |           | Turn [Dial] to select                                  | SPEED<br>CTRL<br>STEP<br>DR MODE<br>DR ASSIGN |         |
| 2 | CTRL F/R              |           | Short press [Dial] to confirm                          |                                               |         |
| 3 | CTRL <sup>F/R</sup>   |           | Turn [Dial] to select<br>Short press [Dial] to confirm | F/R<br>4WH                                    | F/R     |

## Important Notices to Read Before Use

### ③Damping Force Adjustment Steps – Changing the Levels (STEP)

Select how the damping force adjustment range is divided.

Hardest-to-softest range can be divided into 16, 32, 64 or 96 steps.

|   | Display               | Operation                                                                         | Instruction                                            | Available Options                             | Default |
|---|-----------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------|---------|
| 1 | SPEED <sup>km/h</sup> |  | Turn [Dial] to select                                  | SPEED<br>CTRL<br>STEP<br>DR MODE<br>DR ASSIGN |         |
| 2 | STEP 16               |  | Short press [Dial] to confirm                          |                                               |         |
| 3 | STEP 16               |  | Turn [Dial] to select<br>Short press [Dial] to confirm | 16<br>32<br>64<br>96                          | 16      |

## Installation (Motor 1/4)

<Procedures Before Use>

#1 Installation of Motors => #2 Controller Wirings => #3 Driver Unit Wirings => #4 G-force Settings

Below explains the installation of **Motor** , **Wiring** , **Power Supply Filter** , **Signal Converter** , **Controller** , **Driver Unit** and **GPS Kit (Optional)** .

**CONFIRMATION** Please be sure to read this manual (pg.E15 to 26) before installing there components/parts.

### Motor

\* Replace set screws (Except some models / Refer to Figure 4).

\* Install Motors

Install the motor after assembling the shock absorber, spring and upper mount. Then, screw the top nut firmly to the designated torque because it is difficult to tighten it after installing the motor. If it is difficult to install the motor to the vehicle on which the shock absorbers are already installed, we recommend installing the motor after detaching the shock absorber. In this case be careful not to give a shock (blow) to the motor.

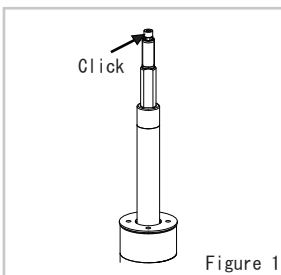


Figure 1

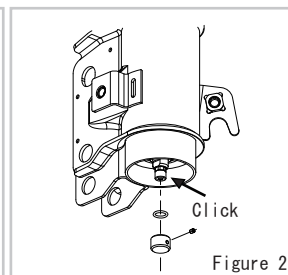


Figure 2

Click (damping force adjustment knob) is located at the top of the shock absorber (Figure 1).

Some inverted mono-tube shock absorber (e.g. Mono Flex struts) has the click at the bottom (Figure 2).

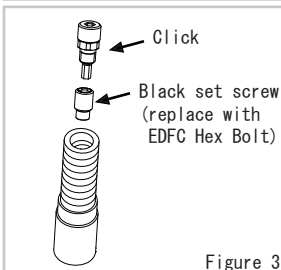


Figure 3

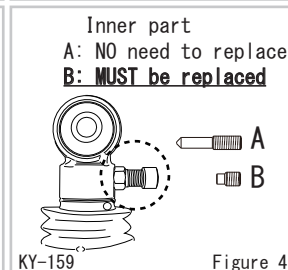


Figure 4

As Figure 3 shows, the shaft holds a black set screw.

**Take that out and replace it with the EDFC Hex Bolt that comes with EDFC5.** Such replacement might not be required for some types of shock absorbers with the click attached to the side as shown in Figure 4. Check the inner part shape to determine if such replacement is necessary or not. For details, please refer the procedures 2 and 3 on the next page.

A: NO need to replace

B: MUST be replaced  
(same shape as the screw included in this kit)



Figure 5



Figure 6

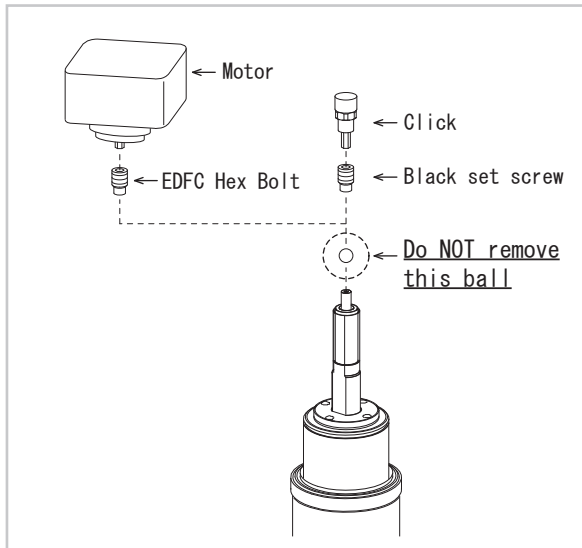
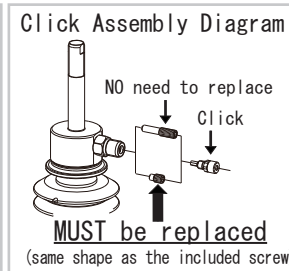
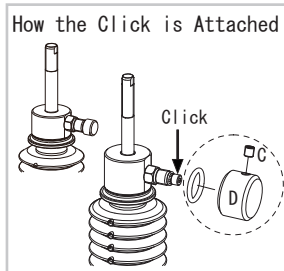
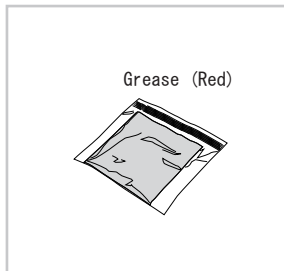
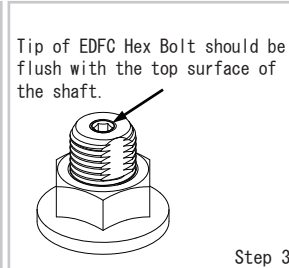
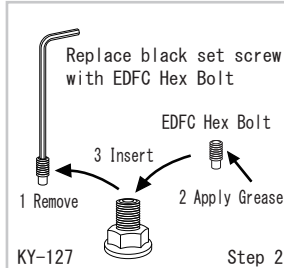
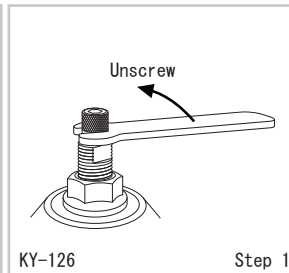
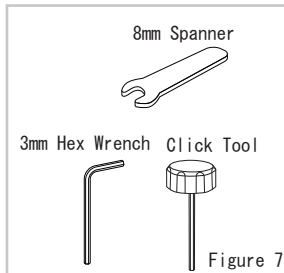


**WARNING**

NEVER remove insert top bolt (Figure 5) and/or shell case bottom bolt (Figure 6) on some of mono-tube shock absorbers (e.g. Mono Flex). Do NOT mistake these for set screw. Removing these bolts might cause enclosed gas to lean and/or inner parts to pop out.

## Installation (Motor 2/4)

### PREPARATION



8mm spanner included in the motor kit is required for these procedures. Also, 3mm hex wrench or click tool (damping force adjustment tool) is required. (Figure 7)

1) Remove the click (knob), using 8mm spanner. (Step 1)

2) Take the black set screw out of the shaft. Apply the grease (red / included in the motor kit) to the threaded part of the EDFC Hex Bolt included in the kit. Insert the EDFC Hex Bolt into the shaft (Step 2).

3) Carefully insert the EDFC Hex Bolt until its top surface is flush with the shaft top (Step 3).

#### CONFIRMATION

Do NOT turn the shock absorber upside down while its set screw has been removed. Inner parts may come off.

Keep the removed click for re-installation.

#### REF

You can use general Molybdenum grease instead.

Supplementary Information for Steps 2 & 3

For the shock absorbers with the click mechanism attached to the side, **the black set screw should be replaced if its shape is the same as the included EDFC Hex Bolt (short screw).**

The click is located inside the knob (D). Loosen the screw (C), using 1.5mm hex wrench, to remove the outer knob (D). Follow the steps 2 & 3 above to replace the black set screw as necessary.

#### REF

Keep the removed click for re-installation.

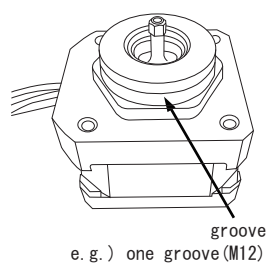


#### CAUTION

For some models, a small ball is inserted under the black set screw as shown in the figure.

Do NOT remove this ball when replacing the EDFC Hex Bolt.

## Installation (Motor 3/4)

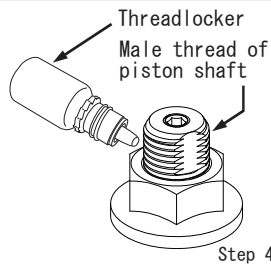


Threadlocker (Green)

Check thread size on piston shaft and match to motor with the same size thread. (Some motor kits have different size motors for front and rear.)

**REF** The size of the motor can be distinguished by the distinction groove outside the shaft attachment part. (M10 : without groove, M12 : One groove, M14 : Two grooves)

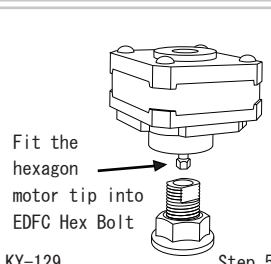
Shake the threadlocker bottle (green liquid, included in the motor kit) well (about ten times)



Step 4

4) Apply the appropriate amount of threadlocker to the male thread on the piston shaft. (Step 4)

**CAUTION** NEVER apply the threadlocker to the female thread of the hexagon socket set screw as it will prevent the screw from turning.

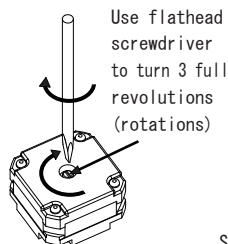


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Step 5

5) Fit the hexagon tip of the motor shaft into the EDFC Hex Bolt (Step 5).

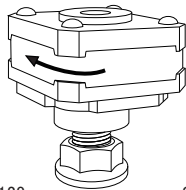
**CAUTION** Screw them only by hand during installation, as the motor and other parts are precisely made.



Step 6

6) Hold the motor by hand and use a flathead screwdriver to turn the slotted screw located on the top center section of the motor 3 full revolutions in the clockwise direction. (Step 6)

GENTLY screw the motor on until it stops



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Step 7

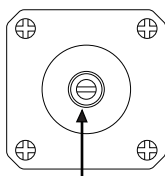
7) Gently screw the motor in the clockwise direction onto the piston shaft until it stops. (Step 7).

Use a flathead screwdriver to screw the slot 2 full revolutions in the clockwise direction.

8) **Now fully screw the motor with the designated torque.**

**3 N·m** (0.3kgf·m, or the same as the torque for M5 screw)

**CAUTION** Be careful not to impose stress to the black-colored part (core part) on the side of the motor with tools, etc. If stress is imposed, the motor may be broken. Also, **NEVER screw the motor with the torque of over 12Nm or turn it further than 45 degrees from the hand-tightened position. Otherwise, the motor may be damaged.**



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Step 9

9) Confirm that the motor shaft turns by using the flathead screwdriver to turn the slot counter-clockwise 1 revolution and then back clockwise 1 revolution. (Step 9)

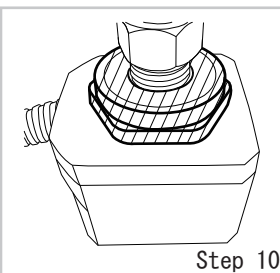
**CONFIRMATION** Confirm if the motor shaft rotates smoothly after the motor is screwed on. If not, some parts may be broken or incorrectly installed. In this case, remove the motor and check that no parts are broken.

## Installation (Motor 4/4)

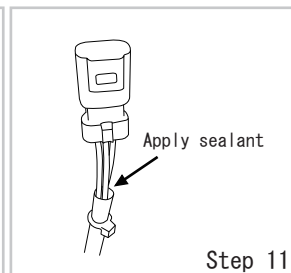
It is required to waterproof the motor properly and securely when fitting the rubber cover, if the following cases apply. Please thoroughly read and perform all the procedures below. These procedures are not necessary if the motor is installed inside the trunk, cabin etc., where water cannot get in.

**Motor MUST be waterproofed if;**

- \* Motor is located where water and/or dust can get to, while driving, washing etc., even if it's inside the engine bay.
- \* Motor is installed at the bottom of the inverted type mono-tube shock absorber (e.g. Mono Flex struts).
- \* Motor is installed near the tire (e.g. rear shock absorber for Elgrand).
- \* Motor is installed at the bottom of or to the external reservoir tank of the shock absorber with independent comp./rebound adjustment feature (e.g. Super Racing).



Step 10



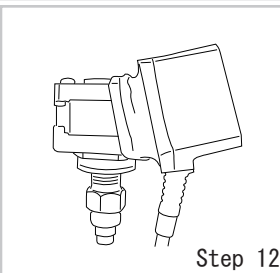
Step 11

**If Motor Comes in Direct Contact with Water and/or Dust**

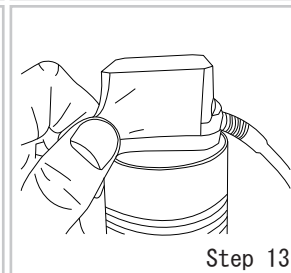
- 10) If the motor is installed to the location where water can reach, apply sealant to the shaded area of the motor (Step 10) and the opening of the cable protection tube (Step 11).



**CAUTION** Use ShinEtsu Silicone Sealant 45 or equivalent.



Step 12



Step 13

- 11) Attach rubber cover on motor. (Step 12)  
Apply a small amount of rust proof or grease to rubber cover opening for easier installation.

- 12) If rubber cover is uneven or its opening end is rolled up, fix by pulling and releasing corners several times. (Step 13)

**REF**

Handle rubber cover with extra care.

Pulling by great force may cause damage.

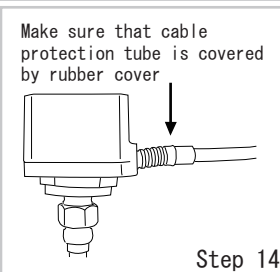
- 13) Avoid leaving any gap between rubber cover and motor. Make sure that cable protection tube is covered by rubber cover. (Step 14)

- 14) Place cable tie over the protection tube near connector and then fasten. (Step 15)

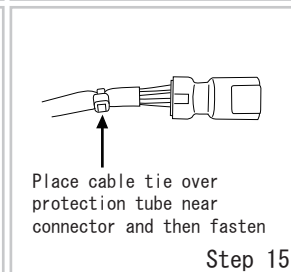


**CAUTION**

Be sure to fasten tube with cable tie. Failure to do so might cause dust or water to enter and as a result damage or shorten the life of motor.



Step 14



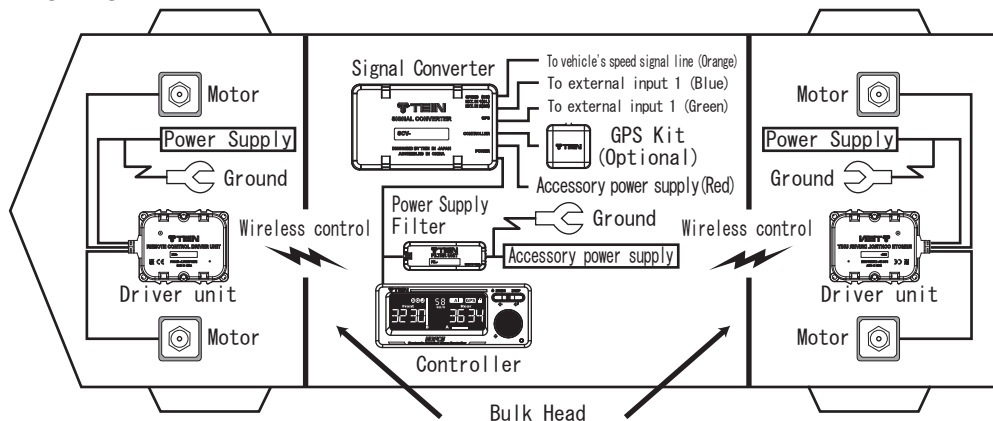
Step 15

# Installation (Wiring)

## Wiring

- \* Connect each unit to power sources which do not have any influence on driving in case of unit's trouble.
- \* Controller (power supply filter) and signal converter MUST be connected to the accessory power supply.
- \* Driver unit can be connected either to the accessory power supply or the constant power supply.
- \* The system can work without signal converter.
- GPS kit (optional) can be connected directly to the controller, without connecting signal converter in between.

The wiring diagrams are shown below.



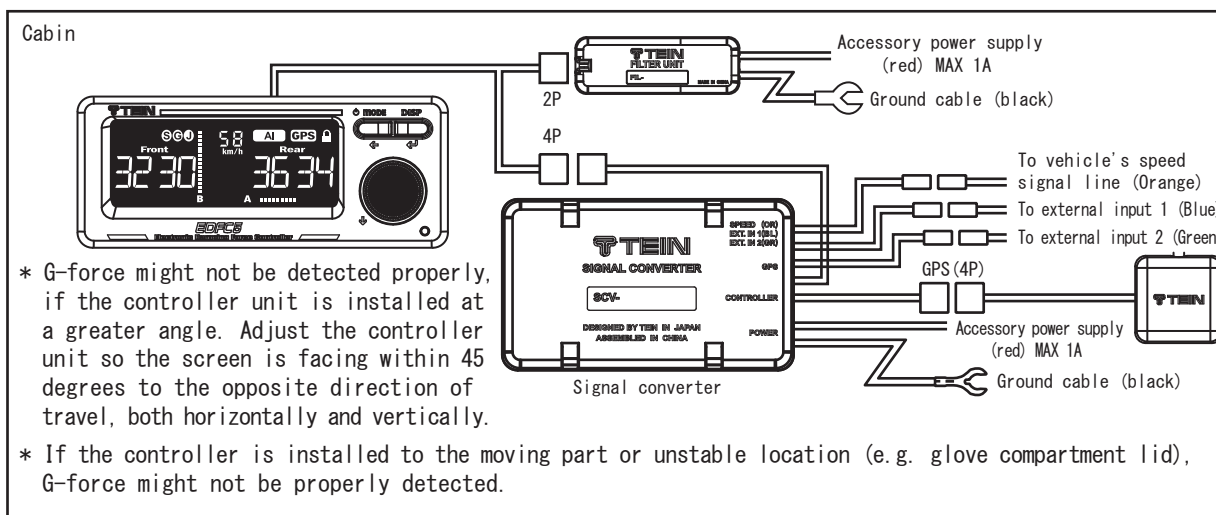
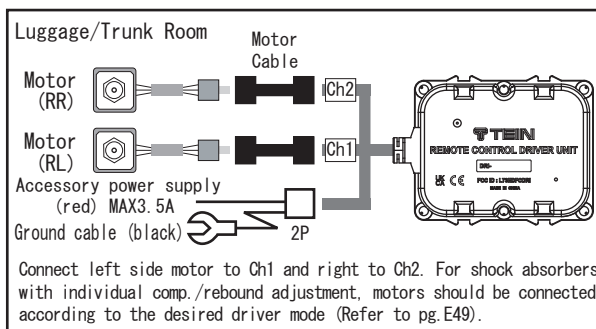
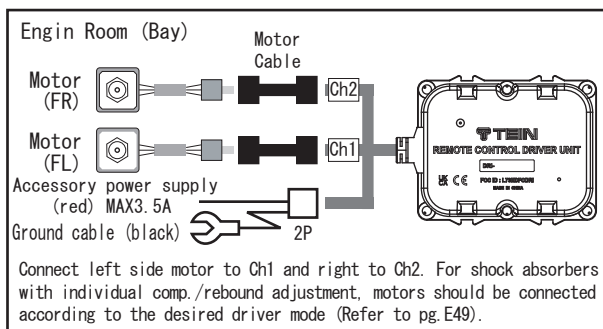
**CAUTION** In order to prevent unexpected short-circuit, always disconnect the negative battery terminal before commencing any wiring work. Remember to reconnect after completion.

Connect each unit to power sources such as a cigarette lighter which does not influence on driving in case of unit's trouble.

Power supply filter (for controller and GPS units) should be connected to accessory power supply. If it uses the constant power supply, the battery will be dead in a short period.

Driver unit can be connected either to the constant power supply or to the accessory power supply. (As driver unit is automatically put in quiescent state when not in use and hence the standby power consumption is relatively low.)

## Example of Wiring for Front-Engine Vehicle



● The shape shown in illustration may differ from the actual product.

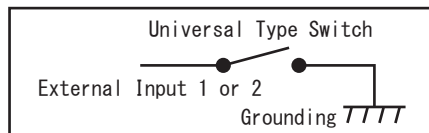
## 1) Power Supply Filter

Connect to 2P connector on controller unit.

- Accessory power supply (Red cable): Connect using the branch connector from accessory power supply of sufficient capacity such as a cigarette lighter.
- Ground cable (Black cable): Firmly connect to a bare metal part of the vehicle (avoid connecting to a painted area).

## 2) Signal converter

- Connect to 4P connector on controller unit.
- Accessory power supply (Red cable):  
Connect using the branch connector from accessory power supply of sufficient capacity such as a cigarette lighter.
- Ground cable (Black cable):  
Firmly connect to a bare metal part of the vehicle (avoid connecting to a painted area.)
- Speed Signal :  
Connect to the vehicle's speed signal line, using the branch connector.
- External Input 1 & 2 :  
Connect to any signal line of which signal turns to 0V when it's turned on, such as parking brake signal. To connect with an universal switch, please refer to the diagram below. When the switch is turned on (the circuit is closed), the system recognize the input signal as ON.
- GPS Kit should be connected to 4P connector.
- Insulate the ends of unused cables with e.g. plastic tape.



## 3) Front/Rear Driver Units

Diagrams on the previous page are for reference only. As the motor positions vary by vehicle structure, place/arrange the driver units and cables to the most appropriate positions for each vehicle model. The kit includes long and short cables. Use them depending on connecting places. (The short one is designed suitable for the front.)

- 12V power supply wire (Red cable)  
It is recommended to connect to the accessory power supply (comes on when the key is in accessory position). It is OK to use the constant power supply (battery). Standby power consumption is approx. 1.5mA per one driver unit, when connected to the constant power supply.

- Ground cable (Black cable)  
Firmly connect to a bare metal part of the vehicle (avoid connecting to a painted area).

**CAUTION** When connecting to accessory power supply, choose the one with enough current capacity. If the capacity is not enough, it will not power the motor. This will not only diminish the product's effects but also might cause negative effect on vehicle's other electronic components.

**CONFIRMATION** Take a note of front/rear driver IDs on pg.E8. As the controller and the drivers have been paired prior to shipment, match the IDs in the setting with the actual IDs. (Refer to pg. E8, E11)

**REF** It is recommended to connect at least one driver unit to the accessory power supply. Doing so allows all motors to return to the original position on start-up (when the ignition key is turned on), to maintain the correct position. Operation sound during such is normal.

If all driver units are connected to the constant supply, motors would not return to zero position each time and hence operation sound can be avoided. In such case, motors have to be returned to the original position manually, as necessary (refer to pg.E27 "Turning the Power ON/OFF").

## 4) Connecting Motors

- Firmly connect the motor and the driver unit.
- Fix the connector with cable tie after allowing sufficient slack on the motor side.
- Driver unit can be connected directly to motors, without using motor cables.

**CAUTION** Please allow enough cable slack for the motor to turn with the rotating motion of the damper. Sufficient slack is especially important for Ft strut type vehicles in order to prevent the cable from braking during steering and possibly causing short-circuits. Check wiring regularly and rewire if cables are twisted and/or tangled to the motor. Disconnect the motor when you adjust the ride height of the vehicle. If not, it can cause the cable to break or short-circuit. Do NOT allow a spring to have play. It may cause piston rod to rotate and the cable to tangled up.

**CONFIRMATION** Each driver unit has Ch1 and Ch2. Be sure to record which motor is connected to each channel (refer to pg.E8). Such information is required for troubleshooting.

When controlling one separately adjustable shock absorber (e.g. Super Racing) with one driver unit, connect Ch1 to rebound side and Ch2 to compression (refer to pg.E49). For other cases, connect left side motor to Ch1 and right to Ch2.

- The shape shown in illustration may differ from the actual product.

**Power Supply Filter** Install the Power Supply Filter securely using double-stick tapes, etc.

- ⚠ **CAUTION** Do NOT install the Power Supply Filter in the following areas to avoid malfunctions:
- Humid or dusty area
  - Any area which becomes high temperature, i.e. places exposed to direct sunlight, near heater outlets
- REF When using double-stick tape, please use a neutral detergent to wipe off dust and oil from the surface prior to installation.

**Signal Converter** Install the signal converter securely using double-stick tapes, etc.

- ⚠ **CAUTION** Do NOT install the signal converter in the following areas to avoid malfunctions:
- Humid or dusty area
  - Any area which becomes high temperature, i.e. places exposed to direct sunlight, near heater outlets
- REF When using double-stick tape, please use a neutral detergent to wipe off dust and oil from the surface prior to installation.

**Controller** Controller unit can be installed using a hook and loop fastener or a double-stick tape, depending on the location and/or the preference. Fix it securely so that the controller does not vibrate during driving.

- ⚠ **WARNING** Before installation, carefully examine where and how to install it as it should never fall off or interfere with driving. Incorrect installation and/or inadequate positioning is dangerous, as it might cause vehicle damage and interfere with driving.
- ⚠ **CAUTION** NEVER install the controller unit in the following areas to avoid malfunctions:
- Humid or dusty
  - Any area which becomes high temperature, i.e. places exposed to direct sunlight, near heater outlets
- If not securely installed, the controller might not be able to detect G-force stably. This may shorten the life of the apparatus and/or suspension.
- NEVER install the controller unit near communication devices, such as cellular phones, Bluetooth and wireless LAN. It may cause miss operation.
- REF
- When using double-stick tape, please use a neutral detergent to wipe off dust and oil from the surface prior to installation.
  - G-force might not be detected properly, if the controller unit is installed at a greater angle. Adjust the controller unit so the screen is facing within 45 degrees to the opposite direction of travel, both horizontally and vertically.
  - Depending on the location and/or angle of the controller unit, LCD screen might be less-visible. In such case, adjust the LCD view angle (refer to pg.E44 "LCD View" / 2 angles available).

## Installation (Driver Unit / GPS kit)

### Driver Unit

- \* Confirm "FRONT" label on the metal surface of one of the driver unit and install it on front side.
- \* It is recommended to connect driver units to the accessory power supply. (It is OK to use the constant power supply. In such case, please refer to the pg. E20: 3) Front/Rear Driver Units)
- \* Do NOT cover the metal surface of the driver unit, as the whole surface serves as heat sink plate.
- \* Do NOT place the driver unit in any place where it will be subject to high temperatures (e.g. near the heat source in engine bay, under direct sunlight).



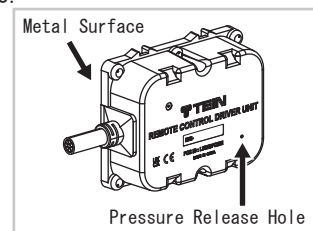
CAUTION

- **Do NOT place the driver unit in any place where it will be subject to direct sunlight or high temperatures (e.g. near the heater outlet, engine body) to avoid malfunctions.**
- Anchor the driver unit firmly, using cable ties, double-stick tape, etc.
- Allow the driver unit to completely cool off before handling. It may become hot while operating.
- Do NOT put double-stick tape on the metal surface of the case.
- Do NOT cover the driver unit with metal to avoid blocking the wireless signal.
- Do NOT loosen nor remove any screw fastening the metal surface of the driver unit. Doing so could lead to malfunctions and/or loose waterproofing performance.

CONFIRMATION

REF

- Take a note of driver ID in pg.E8.
- When using double-stick tape, please use a neutral detergent to wipe off dust and oil from the surface prior to installation.
- **Depending on the vehicle models, some parts/area inside the engine bay tend to collect and keep heat;** for example, behind the strut tower to the bulkhead. For reference, some spots under the lights might not get hot, for many vehicle models.



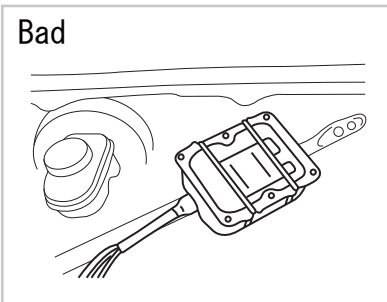
#### Examples (Driver Unit Installation)

Good



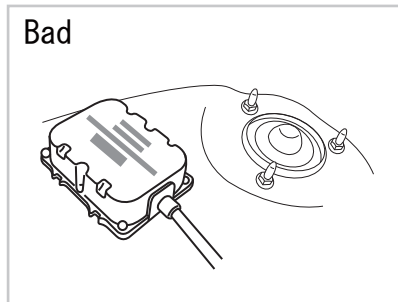
The unit is attached to the flat surface of the vehicle body, with double-stick tapes, without blocking the pressure release hole.

Bad



<Unstable Installation> The unit is fastened to the reinforcing rod with cable ties. (It will be OK if fastened to stable/immobile location.)

Bad



<Heat Release Blocked>  
The metal surface of the unit is attached to the vehicle body, with double-stick tapes.

### GPS Kit (Optional)

GPS

- \* Attach the GPS unit on the dashboard panel below the front windshield.
- \* Before installing the controller unit, make sure the GPS cable can reach the 4P connector of the controller unit.



CAUTION

- Do NOT install GPS unit in the following areas to avoid malfunctions:
  - Humid or dusty area
  - Any area which becomes high temperature, i.e., near heater outlets.

GPS unit is NOT waterproof. Install the unit in the area which does not get wet.

CONFIRMATION

REF

- Affix serial number label included in the GPS kit to the appropriate section on back cover.
- When using double-stick tape, please use a neutral detergent to wipe off dust and oil from the surface prior to installation.
- Depending on locations/circumstances, GPS signals may be weak or unavailable.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The device has been evaluated to meet general RF exposure requirement.