



Instruction Manual on

EDFC Electronic Damping Force Controller

Preface

Thank you for purchasing EDFC.

EDFC is the electronic damping force controller which enables the adjustment of the damping force of TEIN shocks/struts from the driver's seat.

You can control the damping force to meet various situations and easily set the suspension as you like. Please enjoy and feel the changes in the damping force which can be made by EDFC.


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IMPORTANT – Read before continuing

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

《Meaning of the abbreviation and symbol 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.*

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

- * 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.

- Publishing ANY portions of the contents of this manual without TEIN's prior written consent is prohibited by the Copyright Act.

Caution on handling

WARNING

- It is recommended that EDFC is installed by a qualified auto mechanic. 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 EDFC under qualified supervision.
- Install EDFC after the engine, brakes and the parts around it are completely cool. Immediately after driving, the engine or the parts around it 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 EDFC to prevent it from coming off or interfering with driving.
- 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.
- Never operate the controller while driving. There is a possibility of causing an unpredicted accident resulting in an injury or even death.

CAUTION

- As EDFC 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.
- For installing EDFC, it is necessary to modify or remove interior parts or electronic apparatus. TEIN takes no responsibility for the damage of such products.
- 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.
- Never connect the wire conversely or mistake the connection of the wire in order to prevent short-circuiting. If it does short-circuit, other electronic apparatus may also be damaged.
- Never install the control unit 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
- Do not damage, press or pull EDFC motor cable to prevent disconnection or electric leakage.
- Never insert a flathead screw driver or other products into a container to prevent deformation or damaging the water seal.
- Never use an impact wrench for installing the parts of the shock absorber to prevent the inside nut from loosening. If the nut comes off, the piston rod may shoot out because of the high pressure of the internal gas, which is very dangerous.
- Be sure not to 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.
- Never disassemble any EDFC components. If disassembled, it may be damaged and will void ALL warranties.
- Do not modify EDFC components, as it may cause performance decrement and/or breakage.
- Before installation, confirm that there is no excessive or sharp material on each component.
- Be sure to tighten each part according to the specified torque listed in this manual.
- Never drive radically right after installing EDFC.
- Daily inspection is driver's responsibility. After installing EDFC, 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 EDFC motor wet. If water or oil enters EDFC motor, it may cause damage and user should cease use until it is inspected.
- When the motor is installed in a car trunk, be sure that the baggage does not damage it while driving.
- Keep magnetic cards (credit cards, etc.) away from EDFC motor as the motor uses a strong magnet which may damage the card.
- Do NOT use a communication device such as cellular phone near the controller. It may cause faulty operation.
- 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.

Caution on handling



CAUTION

【Threadlocker and Grease】

- 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.
- Should eye contact occur, flush eyes with plenty of water. NEVER wipe or rub eyes. Seek medical attention.
- When threadlocker or grease soaks into clothing, they cannot be removed.
- Keep out of reach of children.
- 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.
- Avoid ingestion.

Description of Threadlocker

Name of Article: anaerobic adhesive agent

Application: Screw slack prevention

Component: Synthetic resin (100%)

Net volume: 4ml

CONFIRMATION

- Before installation, ensure that all parts are present, in accordance with the contents list.
- If the cable is disconnected from the negative terminal of the battery, the memory contents of the electronic devices, such as the clock, car radio, etc. may be deleted. So before installation, confirm the operation of each of these functions and if necessary, please re-set after installation is completed.
- If using double-stick tape to mount the controller, please use a neutral detergent to prepare the surface prior to install.
- When using tapping screws, be careful not to damage the car body with the projected screw points.
- Clean EDFC with a dry cloth and if it is dirty, wipe with a well-wrung cloth. Never use benzene or thinner, which may deteriorate the paint on the case.
- EDFC and this manual are subject to change for improvement without notice.
- For further details and any questions, contact our customer service representative.

MEMO

Specifications on EDFC

- Name of Product : EDFC (Electronic Damping Force Controller)
- 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 (DC12V with minus ground).
- Conditions : Operation while the vehicle is stopped.
- Power consumption : 15mA at the time of power supply for accessory OFF,
2.8A at the time of the accessory power supply ON (at the time of motor rotation)
1.2A at the time of the accessory power supply ON (at the time of motor stop)

Kit Configuration

Description	Part Number	Price (JPY/USD/GBP)	Note
Controller Kit	EDKU4-K4469	¥25,200 / \$230.00 / £130.00	
Motor Kit	(M10, M10)	EDK05-10100	Select correct motor kit for damper/vehicle
	(M10, M12)	EDK05-10120	
	(M10, M14)	EDK05-10140	
	(M12, M12)	EDK05-12120	
	(M12, M14)	EDK05-12140	
	(M14, M14)	EDK05-14140	
Motor Kit		¥16,275/Kit \$150.00/Kit £90.00/Kit	
Strut Kit	EDK06-K4474	¥3,150 / \$30.00 / £20.00	For use with P/U on strut type suspension

List of Contents

Controller Kit Contents Chart

Description	Qty/Kit	Part Number	Unit Price (JPY/USD/GBP)
Controller	1	—	—
Power Supply Cable (2.0 m)	1	EDC01-F1320	¥840 / \$8.00 / £4.00
Ft Cable (1.0 m)	1	EDC01-F1321	¥735 / \$7.00 / £4.00
Rr Cable (1.0 m)	1	EDC01-F1322	¥735 / \$7.00 / £4.00
Intermediate cable FR (2.5 m)	1	EDC01-K3606	¥1,050 / \$10.00 / £6.00
Intermediate cable FL (2.5 m)	1	EDC01-K3607	¥1,050 / \$10.00 / £6.00
Intermediate cable RR (4.6 m)	1	EDC01-K3608	¥1,260 / \$11.00 / £7.00
Intermediate cable RL (4.6 m)	1	EDC01-K3609	¥1,260 / \$11.00 / £7.00
Bracket for Control Box	1	EDC02-F1136	¥840 / \$8.00 / £4.00
Tapping screw	2		
Velcro	2		
Branch connector	3		
Cable Tie	10		
Double-stick tape (50×30)	2		
Double-stick tape (75×18)	1		
8mm spanner	1	SST01-F1126	¥525 / \$5.00 / £3.00
Hexagon socket set screw	4	SAP44-96367	¥315 / \$3.00 / £2.00
3mm Hex key	1	—	—
Grease	1	—	—
Threadlocker	1	—	—
Instruction Manual	1	—	—
Container box	1	—	—

The illustration may slightly differ from actual item.

List of Contents

Motor Kit Contents Chart

Description	Qty/Kit	Part Number	Unit Price (JPY/USD/GBP)
Motor with rubber cover (M10)	See the following table	EDC01-K1466-1	¥5.775/\$52.00/£30.00
Motor with rubber cover (M12)	See the following table	EDC01-K1466-2	¥5.775/\$52.00/£30.00
Motor with rubber cover (M14)	See the following table	EDC01-K1466-3	¥5.775/\$52.00/£30.00
Cable Tie	4	—	—
Instruction Manual	1	—	—

Quantity of motors with rubber cover in each model

Motor Kit No.	Motor (M10)	Motor (M12)	Motor (M14)
EDK05-10100	4	—	—
EDK05-10120	2	2	—
EDK05-10140	2	—	2
EDK05-12120	—	4	—
EDK05-12140	—	2	2
EDK05-14140	—	—	4

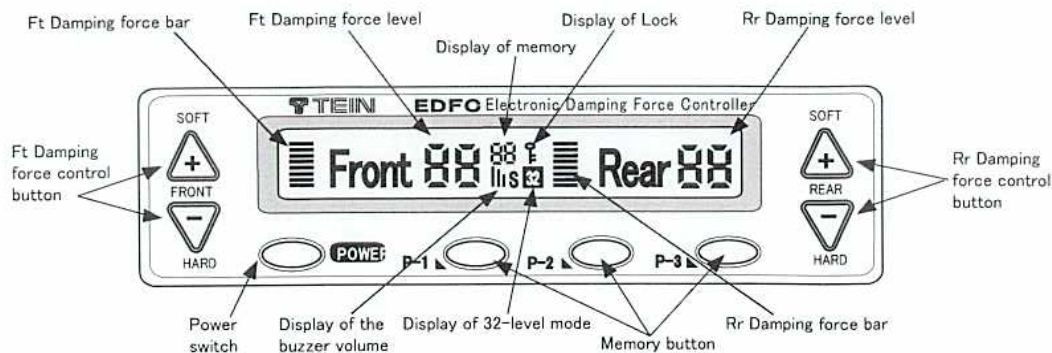
Strut Kit Contents Chart

Description	Qty/Kit	Part Number	Unit Price (JPY/USD/GBP)
EDFC Harness Tangle-Proof Kit	1 ea.	EDC02-H3261/J2337	—
Instruction Manual	1	—	—

Note : JPY Includes 5% sales TAX.
 GBP Does not include VAT.

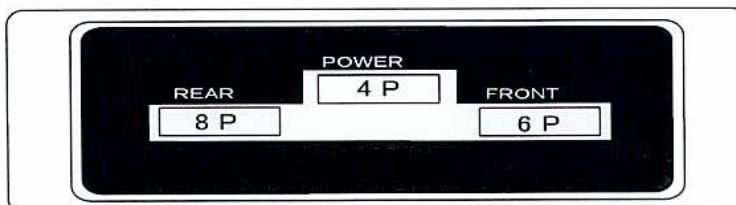
Name and function of each part

Front face



- Power switchFor turning on or off the power supply to EDFO
 - Ft Damping force control + buttonFor reducing Ft damping force (soft)
 - Ft Damping force control - buttonFor increasing Ft damping force (hard)
 - Rr Damping force control + buttonFor reducing Rr damping force (soft)
 - Rr Damping force control - buttonFor increasing Rr damping force (hard)
 - Memory button (P-1, P-2 and P-3).....For storing and recalling the memory contents of desired settings.
- Display of LCD
 - Ft Damping force level Showing Ft damping force level
 - Ft Damping force bar Showing Ft damping force bar
 - Rr Damping force level Showing Rr damping force level
 - Rr Damping force bar Showing Rr damping force bar
 - Display of memory Showing the memory contents
 - Display of 32-level mode Showing 32 at 32-level mode
 - Display of lock mark Showing the mark of KEY
 - Display of the buzzer volume Showing the level of the buzzer volume

Back face



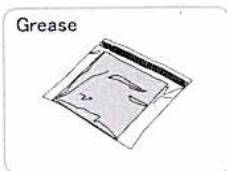
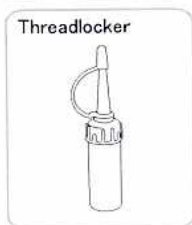
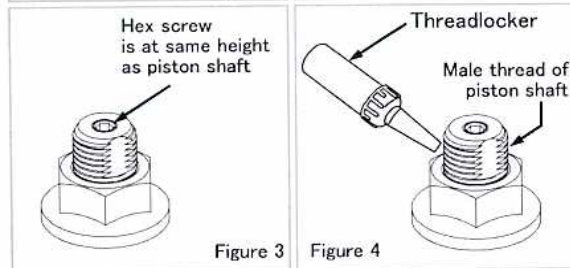
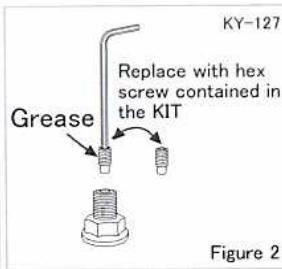
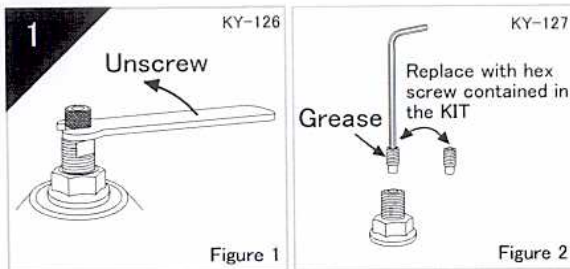
- 4P ConnectorFor connecting to 4P connector of power cable
- 6P ConnectorFor connecting to 6P connector of Ft cable
- 8P ConnectorFor connecting to 8P connector of Rr cable

Installation

Below explains the installation of **motors** , **controller** and **wiring** .

Motor

Install the motor after assembling the shock absorber, upper spring seat 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.



1) Detach and remove the silver click assembly located at the top of the piston shaft using the 8mm black spanner wrench contained in the kit. (Figure 1)

2) Using the provided silver hex key, unscrew and remove the hex screw located inside the piston shaft. (Figure 2)

⚠ CAUTION Keep the removed click & hex screw for reuse.

⚠ CAUTION Never invert (turn upside down) the shock absorber after removing the hex screw as the internal parts may come off.

3) Apply the grease to the threads on the hex screw contained in the KIT. (Figure 2)

4) Carefully screw in the hex screw contained in the KIT until the top of hex screw is flush with the top of the piston shaft. (Figure 3)

⚠ CAUTION Remove anti-loosening agent residue on threaded part of piston shaft, as such residue may cause motor to malfunction.

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

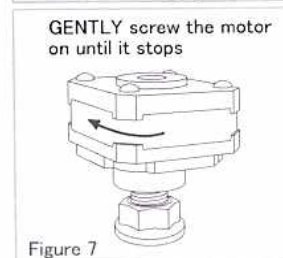
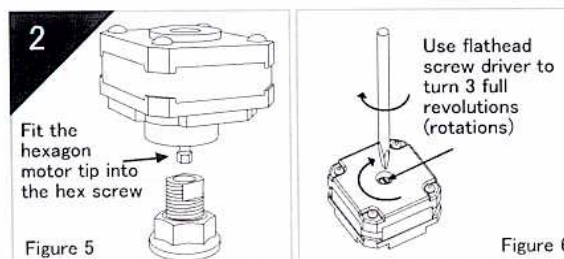
REF The size of the motor can be distinguished by the distinction groove outside the shaft attachment part.

(M10 : without groove M12 : One groove M14 : Two grooves)

6) Shake the threadlocker bottle well (about ten times) before each use, as its ingredients might be separated.

7) Apply the threadlocker (green liquid) appropriately to the male thread on the piston shaft. (Figure 4)

⚠ CAUTION Never apply the threadlocker to the female thread of the hexagon socket set screw as it would not be screwed.



1) Fit the hexagon tip of the EDFC motor into the hex screw contained in the KIT. (Figure 5)

⚠ CAUTION As the motor and other parts are precisely made, screw them only by hand during installation. Be sure not to impose stress or cause them to be knocked.

2) 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. (Figure 6)

3) GENTLY screw the motor in the clockwise direction onto the piston shaft until it stops. (Figure 7)

4) Again, use a flathead screwdriver to screw the slot 2 full revolutions in the clockwise direction.

Installation

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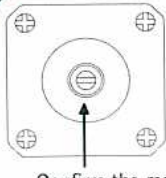


Figure 8 Confirm the motor shaft rotation



Figure 9

Make sure that cable protection tube is covered by rubber cover

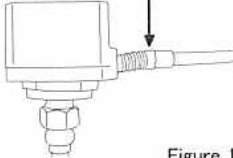
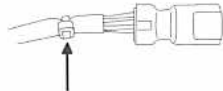


Figure 10



Place cable tie over protection tube near connector and then fasten.

Figure 11

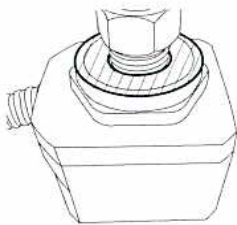


Figure 12

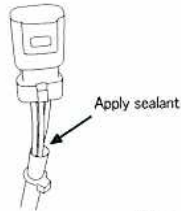


Figure 13

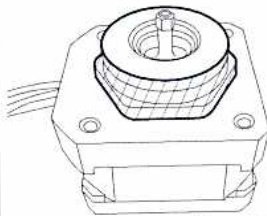


Figure 14

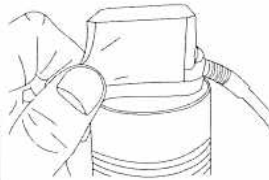


Figure 15

- 1) Now fully screw the motor with the designated torque (hand tight).

Designated Torque: 3 N·m

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 position of screwing in. Otherwise, the motor may be damaged.

- 2) Confirm that the motor shaft turns by using the flathead screwdriver to turn the slot counterclockwise 1 revolution and then back clockwise 1 revolution.(Figure 8)

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

- 3) Attach rubber cover on motor. (Figure 9,10)

CAUTION Handle rubber cover with extra care, as pulling by great force may cause damage.

CAUTION Avoid leaving any gap between rubber cover and motor. Make sure that cable protection tube is covered by rubber cover. Be sure to attach rubber cover properly. Failure to do so might cause dust or water to enter and as a result damage or shorten the life of motor.

REF Applying a small amount of Rust Proof or grease to rubber cover opening will make installation easier.

- 4) Place cable tie over protection tube near connector and then fasten. (Figure 11)

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.

- 5) Apply sealant to the shaded area in Figure 12, if motor might get wet depending on where it's installed. Opening of cable protection tube needs to be closed up with sealant as well. (Figure 12,13)

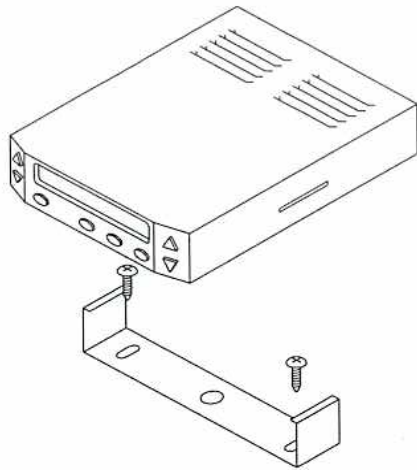
- For installation on inverted type damper

- When installing motor onto inverted type damper, apply sealant to the shaded area in Figure 14, attach motor to damper, and then put rubber cover on. (Figure 14)

REF If rubber cover is uneven or its opening end is rolled up, its shape can be fixed well by pulling and releasing each four corners several times. (Figure 15)

Controller

Installation by the exclusive bracket and tapping screws



Control unit can be installed by the following three methods and user can select the suitable method for the place for installation.

1. By the exclusive bracket and tapping screws
2. By Velcro
3. By the double-stick tape

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 could cause vehicle damage and interfere with driving.

CAUTION Never install near communication devices, such as mobile phone, as it may cause misoperation. Never install the controller unit in the following areas to avoid malfunctions:

- Humid or dusty area
- Any area with high temperature due to being exposed to direct sunlight or warm air from the heater.

REF For installations with double-stick tape, wipe the mounting area, well enough to be rid of oil or dirt, using a neutral detergent.

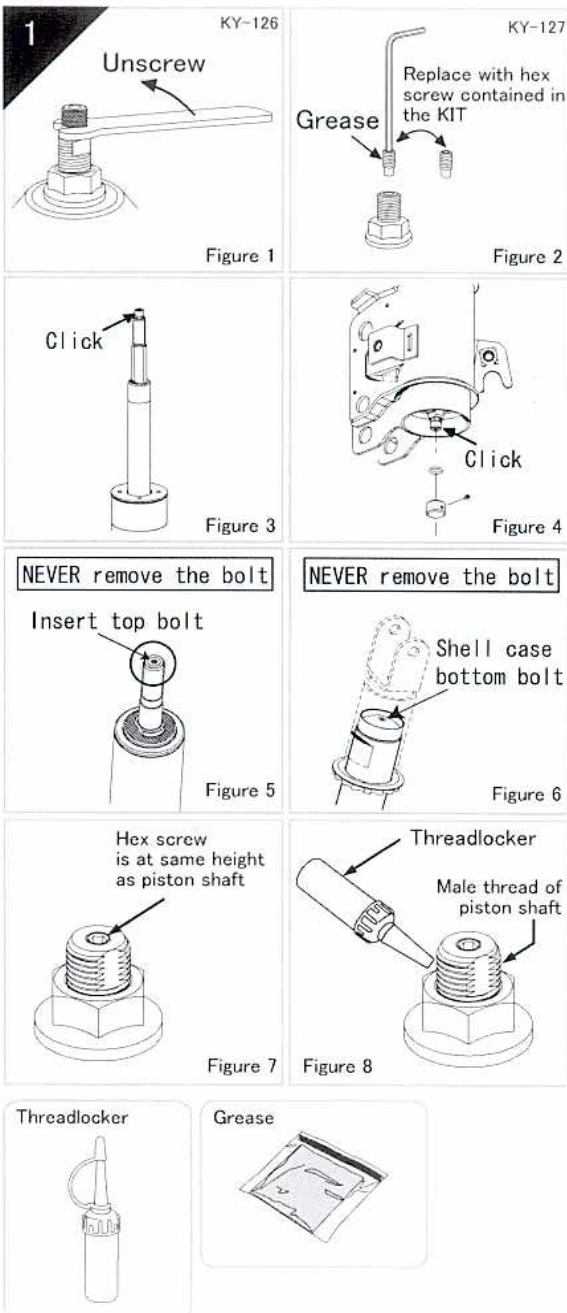
CONFIRMATION When anchoring the controller with Velco and/or double-stick tape, do NOT cover the seal and/or the sticker with serial number (located on bottom surface). These seal/sticker need to be intact, in order to receive after-sales service.

Installation

Below explains the installation of **motors** , **controller** and **wiring** .

Motor

Install the motor after assembling the shock absorber, upper spring seat 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.



- 1) Remove the silver click assembly by turning counter-clockwise with the black spanner wrench included in the kit. (Figure 1)

The click is located at the top of the piston rod (upright type shock absorber / Figure 3) or at the bottom of the shell case (inverted type shock absorber / Figure 4).

- ⚠ CAUTION Do NOT remove bolts at the insert top (Figure 5) and/or at the bottom of the shell case (Figure 6), if any.

Detaching such bolt might cause enclosed gas to leak and/or inner parts to pop out.

- 2) Using the provided silver hex key, unscrew and remove the hex screw located inside the piston shaft. (Figure 2)

- ⚠ CAUTION Keep the removed click & hex screw for reuse.

- ⚠ CAUTION Never invert (turn upside down) the shock absorber after removing the hex screw as the internal parts may come off.

- 3) Apply the grease to the threads on the hex screw contained in the KIT. (Figure 2)

- 4) Carefully screw in the hex screw contained in the KIT until the top of hex screw is flush with the top of the piston shaft. (Figure 7)

- ⚠ CAUTION Remove anti-loosening agent residue on threaded part of piston shaft, as such residue may cause motor to malfunction.

- 5) Check thread size on piston shaft and match to motor with same thread size. (Some kits have different size front EDFC motors than rear EDFC motors)

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)

- 6) Shake the threadlocker bottle well (about ten times) before each use, as its ingredients might be separated.

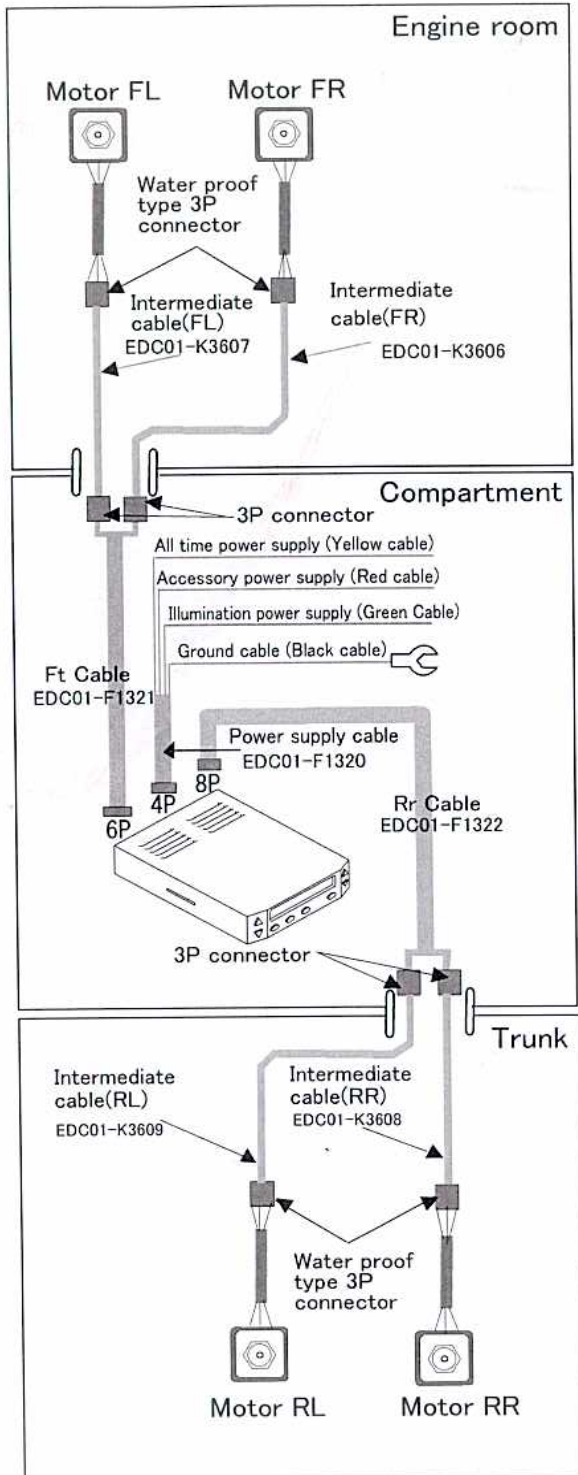
- 7) Apply the threadlocker (green liquid) appropriately to the male thread on the piston shaft. (Figure 8)

- ⚠ CAUTION Never apply the threadlocker to the female thread of the hexagon socket set screw as it would not be screwed.

Installation

Wiring

The wiring diagram is shown left. In order to prevent unexpected short-circuiting, always disconnect the negative battery terminal before commencing any wiring work. Remember to reconnect after completion. An audible buzzer confirms electrical connection.



1. Power supply cable (The cable with 4P connector)

- Constant power supply (Yellow cable)
Connect using a branch connector from the constant power supply source.
- Accessory power supply (Red cable)
Connect using a branch connector from the necessary accessory power supply of sufficient capacity.
- Illumination power supply (Green cable)
Connect using a branch connector from the illumination power supply.
- Ground cable (Black cable)
Firmly connect the gold plated connector to a bare metal part of the vehicle (avoid connecting to a painted area).

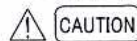


CAUTION

If the red cable is connected to the accessory power supply with insufficient capacity, it will not power the motor and can have a negative effect on the vehicle's other electronic components.

2. Intermediate cables for Ft and Rr

- Firmly connect Ft cable connector (6P) and Rr cable connector (8P) to the control box.
- Run intermediate cables through front and rear bulkheads into the cockpit.
- Firmly connect Ft cable and Rr cable to the intermediate cables according to their labels.
- Secure the excess cable with a cable tie.



CAUTION

Ensure that the connections between the Ft and Rr cables and the intermediate cables are connected within the cockpit, as they are not waterproof. If they should become wet, they could cause short-circuiting or other damage to the controller.

Please ensure that grommets are used when running cables through both front and rear bulkheads.



If the original intermediate cable is too short, it is possible to use the other intermediary cable. However, ensure that correct connections are made otherwise the wrong motor may operate and may cause problems during trouble-shooting errors.

3. Connect to the motor

- Firmly connect the motor and the intermediate cable via the connectors attached.
- Fix the connector with a cable tie after allowing sufficient slack on the motor side.



CAUTION

Please allow enough 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 becoming snagged or disconnected during steering and possibly causing short-circuits.

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.

EDFC STRUT KIT

● Usage Conditions

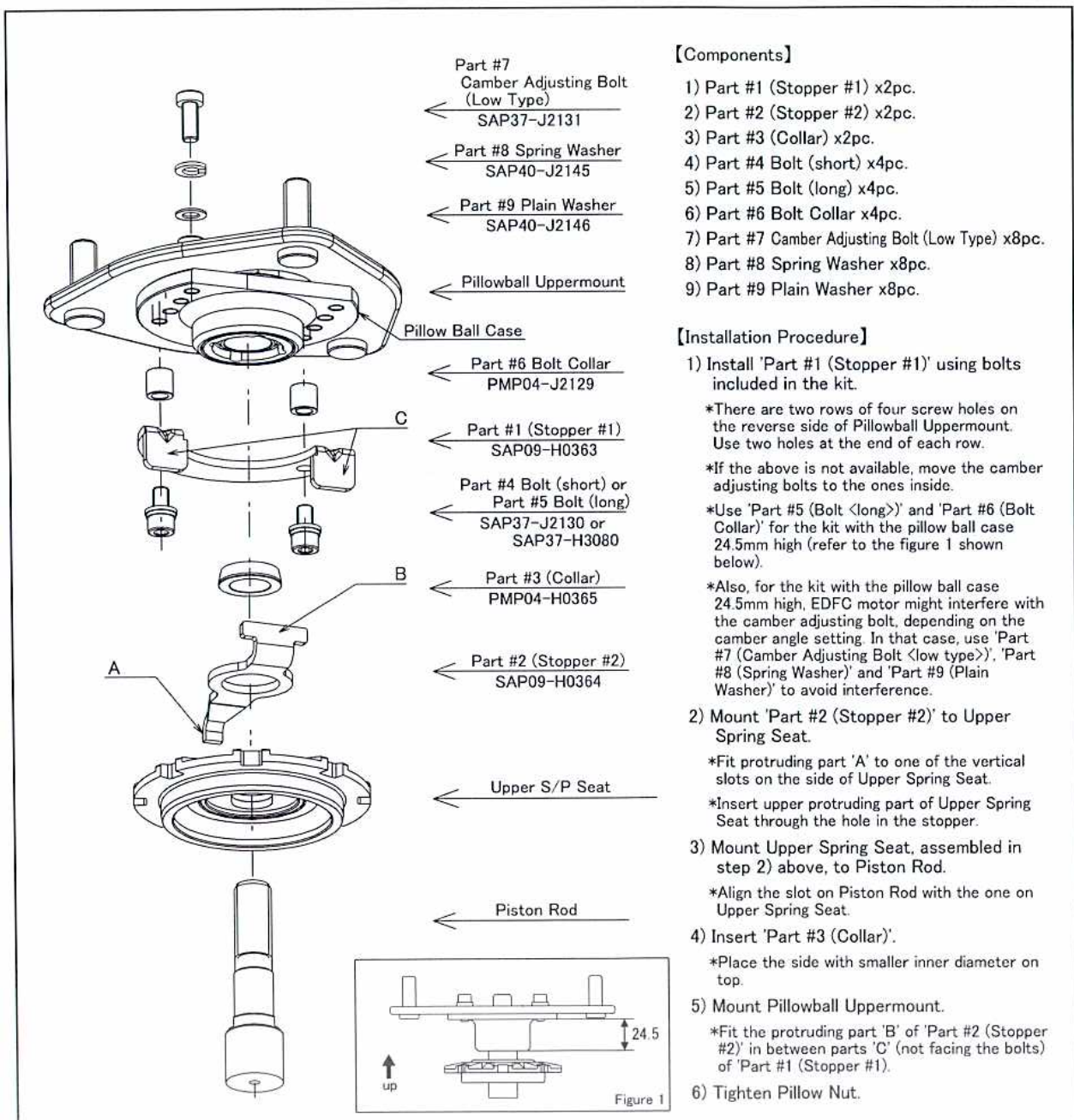
Installation of this product is optional.

This product prevents the wiring from coiling around when adjusting the ride height upon set-up without the need to disconnect the motor.

Depending upon driving conditions and/or settings, the EDFC motor may rotate in one direction. If let alone, the wiring might get tangled up with piston rod and, consequently, might be broken or disconnected.

It usually does not create any problem if the wiring is unwound whenever the tangling is found or upon periodic inspections, however in rare cases the incidence is quite high enough to cause breakage or disconnection in between routine maintenance.

If tangling of the wiring occurs within a few days of EDFC installation, install this product to prevent future occurrence.



【Components】

- 1) Part #1 (Stopper #1) x2pc.
- 2) Part #2 (Stopper #2) x2pc.
- 3) Part #3 (Collar) x2pc.
- 4) Part #4 Bolt (short) x4pc.
- 5) Part #5 Bolt (long) x4pc.
- 6) Part #6 Bolt Collar x4pc.
- 7) Part #7 Camber Adjusting Bolt (Low Type) x8pc.
- 8) Part #8 Spring Washer x8pc.
- 9) Part #9 Plain Washer x8pc.

【Installation Procedure】

- 1) Install 'Part #1 (Stopper #1)' using bolts included in the kit.

*There are two rows of four screw holes on the reverse side of Pillowball Uppermount. Use two holes at the end of each row.

*If the above is not available, move the camber adjusting bolts to the ones inside.

*Use 'Part #5 (Bolt <long>)' and 'Part #6 (Bolt Collar)' for the kit with the pillow ball case 24.5mm high (refer to the figure 1 shown below).

*Also, for the kit with the pillow ball case 24.5mm high, EDFC motor might interfere with the camber adjusting bolt, depending on the camber angle setting. In that case, use 'Part #7 (Camber Adjusting Bolt <low type>)', 'Part #8 (Spring Washer)' and 'Part #9 (Plain Washer)' to avoid interference.

- 2) Mount 'Part #2 (Stopper #2)' to Upper Spring Seat.

*Fit protruding part 'A' to one of the vertical slots on the side of Upper Spring Seat.

*Insert upper protruding part of Upper Spring Seat through the hole in the stopper.

- 3) Mount Upper Spring Seat, assembled in step 2) above, to Piston Rod.

*Align the slot on Piston Rod with the one on Upper Spring Seat.

- 4) Insert 'Part #3 (Collar)'.

*Place the side with smaller inner diameter on top.

- 5) Mount Pillowball Uppermount.

*Fit the protruding part 'B' of 'Part #2 (Stopper #2)' in between parts 'C' (not facing the bolts) of 'Part #1 (Stopper #1)'.


- 6) Tighten Pillow Nut.


Operation

- After confirming that all wiring work is finished and all parts are equipped, turn on the accessory power supply.

1. How to turn on the system


- By pushing and holding the power supply button for two seconds, the power supply of EDFC is turned on and the zero return mode is performed. With this operation, Ft and Rr motors rotate and the damping force control mechanism of each shock absorber is in a full close state (0 level). The state is displayed on LCD. (The damping force is in the hardest/firmer state).
- By pushing the power supply button for two seconds, the power supply of EDFC is turned off.

 **CAUTION** If the control unit is switched off, there is potential for EDFC motors to turn involuntarily, and change damping force, under vibration during driving. To prevent this, always keep EDFC power on while driving. If damping force has involuntarily been changed, switch the control unit on to return all settings to 0.

 **CONFIRMATION** It is normal for sound to be emitted while the motors rotate. When the damping force control mechanism is in totally close state, a motor shaft does not rotate.


2. How to set the damping force level mode

- When the power supply of EDFC is turned on, 16-level mode is set but the mode can be changed to 32-level mode by pushing Ft damping force control + button and Rr damping force control + button simultaneously just after the zero return mode is performed.
- If the other operation than pushing the two buttons as above is performed, 16-level mode is not changed.
- If the mode is 32-level, the figure of 32 is shown at the 32-level mode display part on LCD. If there is no figure on the part, the mode is 16-level.
- To change the mode, turn on the power supply of EDFC again and reset the mode.

 **REF** The range of the damping force of 32-level mode and 16-level mode are the same (the range between the hardest level and the softest level). 8th level in 16-level mode is equivalent to 16th level in 32-level mode. If a driver wants to set at 8.5th level in 16-level mode, he can set to 17th level in 32-level mode and enjoy finer adjustment of the damping force.


3. How to change the damping force level

- To make the damping force stiffer Ft or Rr, change to the desired level by pressing the damping force button “-”. To make it softer to the desired level, press “+”. (Level 0 is the firmest setting).
- By pushing the button, the motor rotates and the damping force level at each time is shown on the damping force level indicator on the controller LCD.
- By keep pushing the button, the level can be changed continuously.

 **REF** Ft damping force and Rr damping force can not be changed simultaneously.

4. How to store the desired setting in memory

- EDFC is equipped with a function to store 3 damping force settings in the memory. For storing the desired settings in the memory, press a selected memory button (P1-P3) and hold for 2 seconds. The present Ft and Rr damping force levels are stored and the memory button is turned on red. The memory number is displayed at the memory display part on LCD and blinks for three seconds.

 **CAUTION** Keep in mind that if the power supply of EDFC is turned off, the memory is deleted. If the power supply of EDFC is continuous, the memory is kept.

 **REF** The initial set levels of Ft and Rr are both 0.

5. How to recall the memory of the desired setting

- Push the button where the desired setting is stored. The motor rotates to the memorized damping force level and the level is shown at the damping force level display part on LCD. Then, the memory button blinks red and the memory number is shown at the memory number display part on LCD.


6. How to change the buzzer volume

- The buzzer volume can be set at four levels as loud, normal, low and silent, by pushing P-1 and P-2 buttons at the same time for two seconds to enter volume change mode.
- The volume level can be changed by pushing Rr damping force control + button or Rr damping force control - button. The changed level is shown at the buzzer volume level display part on LCD.
- By pushing P-1 and P-2 buttons at the same time for two seconds, controller is released from the volume change mode. (If it is not released manually, it is automatically released after 10 seconds).

 **CAUTION** Keep in mind that if the power supply to EDFC is turned off, the memory is deleted. (The initial set volume is normal). If the power supply of EDFC is continuous, the setting is kept.

7. How to control the brightness of dimmer function

- The brightness of dimmer function can be set at three levels as bright, normal and dark, by pressing P-2 and P-3 buttons at the same time for two seconds to enter brightness change mode.
- By pushing Rr damping force control + button or Rr damping force control - button, the brightness can be changed.
- By pushing P-2 and P-3 buttons again at the same time for two seconds, controller is released from the mode (If it is not released manually, it is automatically released after 10 seconds).


 **CAUTION** Keep in mind that if the power supply to EDFC is turned off, the memory is deleted. (The initial set brightness is normal). If the power supply of EDFC is continuous, the setting is kept.

8. How to lock controller to avoid unnecessary operation

- Push P-1, P-2 and P-3 buttons at the same time for two seconds, so that the operation lock mark (KEY mark) is shown at the operation lock display part on LCD. The controller stops receiving the operation except the one for canceling the lock mode.
- To cancel the lock mode, push the above three buttons again at the same time for two seconds. The lock mark on LCD disappears.

9. When an error mark is displayed.

- If the controller detects any trouble such as the disconnection of a motor cable, an error mark is shown on the damping force level display part on LCD. The mark is shown as follows: (Right side: ER, Left side: EL, Both sides: EE)
- When such error is shown, immediately turn off the power supply to EDFC and check the wiring and/or motor according to the trouble-shooting guide after removing a key from the ignition and disconnecting the cable from the negative terminal of the battery.

 **WARNING** The circuit is designed with safety in mind, but it is very dangerous to drive the car while an error is displayed on the LCD. This could cause problems such as fire if left un-investigated.

Trouble-shooting

Trouble	Probable causes	Solution
Pushing the power source button but no reaction.	The power supply cable is not connected securely.	Confirm if the branch connector and the ground cable are securely connected.
	The accessory power supply is not turned on.	Turn the key to turn on the accessory power supply.
	The connectors of the control box and the power source cable are not connected securely.	Securely connect the connector.
	The fuse is blown out.	Confirm if all cables are securely connected and if so, replace the fuse.
Turning on the light but the LCD display does not darken.	The illumination power supply cable is not connected securely.	Find a branch connector which is not securely connected and connect it securely.
An error mark is displayed.	The wiring to the motor is disconnected.	Find a damaged or disconnected motor cable and replace or securely connect it.
	The connector of the motor cable is not connected securely.	Securely connect the connector.
Motor would not rotate.	Some parts are deformed or damaged due to strong stress at installing.	Confirm if the motor shaft turns lightly with a flathead screw driver and if not, install it again according to this manual.
The controller malfunctions.	The computer within the controller may be malfunctioning due to electromagnetic wave of cellular phone or heat .	After removing the cable from the minus terminal of a battery, securely connect it and reset the controller.

Important Notice

1. All TEIN products are for off-road use (including racing) and show purposes only.
2. TEIN products should not be used in vehicles driven on public roads.
3. TEIN takes NO responsibility for parts which are prohibited by local laws.
4. The installation of this product on vehicles running on public roads may be dangerous and may violate local laws.
5. Purchaser takes full responsibility for correct installation of parts.
6. All parts should be installed by a properly licensed mechanic.
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