

HKS MUFFLER



User & Installation Manual

<PART NUMBER : 31025-AN006>

CBA-R35

3 Stage eXhaust



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

Manual No. E65400-N24180-00
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Thank you for purchasing an HKS exhaust system.

- ★Please read this User & Installation Manual thoroughly before using this product so that you will understand and use product correctly.
- ★Please verify that the contents of this are correct before installation on the vehicle.

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Confirm Before Installation

- ★ Make sure that all of the parts listed in the Parts List are included in the kit.
- ★ Be careful when handling this product; avoid subjecting it to excessive impacts. Failure to do so may result in product damage or improper installation that may result in exhaust gas leak.
- ★ Refer to the page 8 to 25 for installation procedures.

List of Components & Accessories				Required Tools	
<input type="checkbox"/> Mid Pipe	1	<input type="checkbox"/> Controller Kit	1	Box-end Wrench 8	1
<input type="checkbox"/> Main Muffler	1	<input type="checkbox"/> Emblem	1	Box-end Wrench 10	1
<input type="checkbox"/> Right Exhaust Tip	1	<input type="checkbox"/> User & Installation Manual	1	Box-end Wrench 12	1
<input type="checkbox"/> Left Exhaust Tip	1	<input type="checkbox"/> Warranty Certificate	1	Box-end Wrench 14	2
<input type="checkbox"/> Gasket (85mm)	1			Spanner 10	1
<input type="checkbox"/> V-band (95mm)	1				
<input type="checkbox"/> Washer Faced Nut (M6 P=1.0)	4				
<input type="checkbox"/> Washer Faced Nut (M8 P=1.25)	2				
<input type="checkbox"/> Washer Faced Nut (M10 P=1.25)	2				
<input type="checkbox"/> Right Motor Bracket	1				
<input type="checkbox"/> Left Motor Bracket	1				
<input type="checkbox"/> Collar	4				
<input type="checkbox"/> Bolt (M8 L=40 w/Washer)	4				
<input type="checkbox"/> Geared Motor	2				
<input type="checkbox"/> Bolt (M6 L=25)	4				
<input type="checkbox"/> Washer (M6)	4				
<input type="checkbox"/> Control Cable	4				
<input type="checkbox"/> Tie Wrap	4				

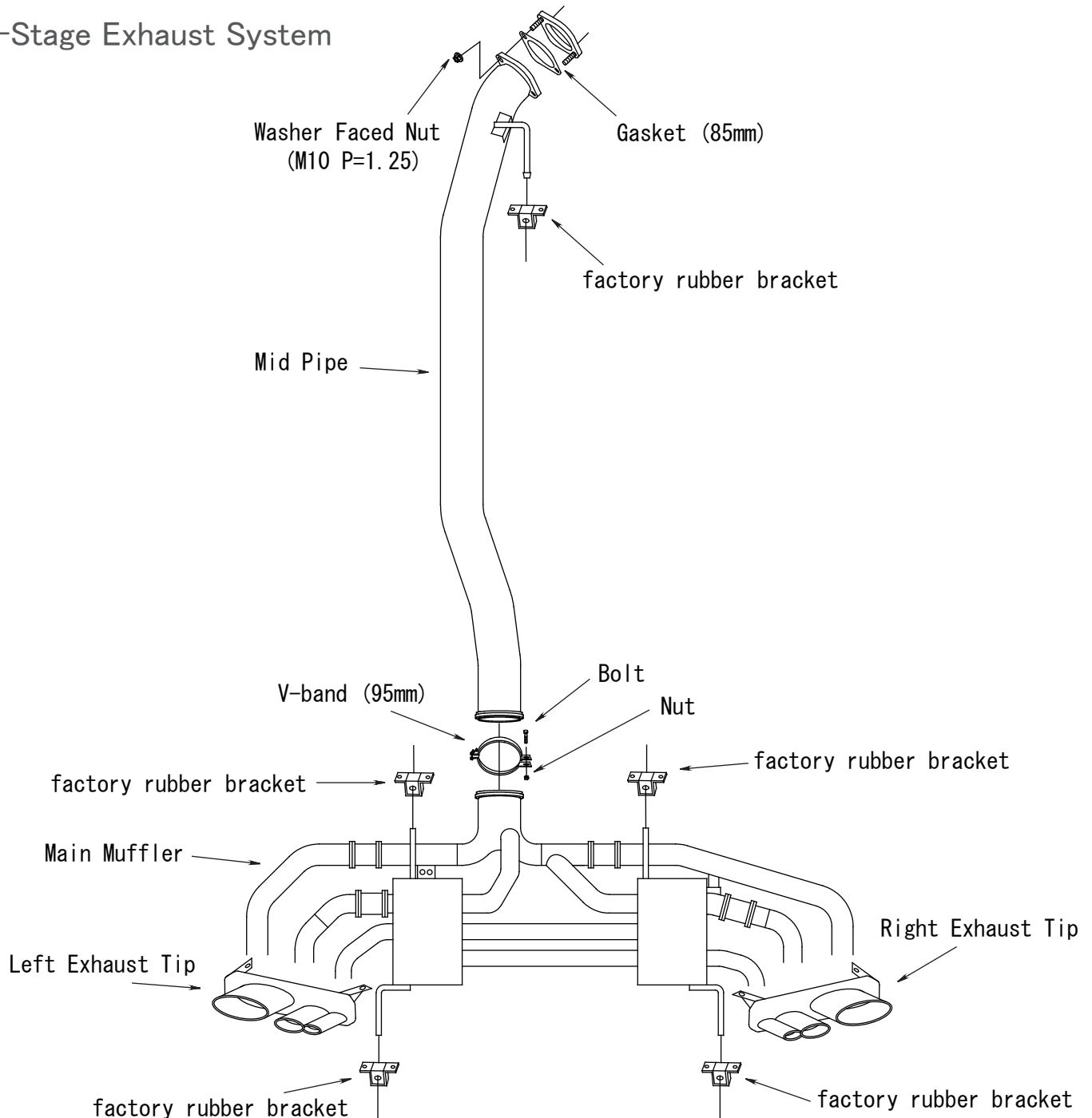
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(1)Read Before Use

Make sure to read the following before using this product:

Diagram of Exhaust System Components

3-Stage Exhaust System



Make sure to read the following before using this product:

Applications

- Vehicle : Nissan GT-R
- Model : CBA-R35
- Model Year : '07/12~
- Engine : VR38DETT
- Product Name : 3-Stage Exhaust System
- Part Number : 31025-AN006
- Vehicle's Height After Installing This Product
 - Between Wheel Base : Approximately 110mm
 - Between Treads : Approximately 110mm
- Remarks: The vehicle with this product may be out of the manufacturer's guarantee.

Thank you for purchasing an HKS exhaust system. Please read this User & Installation Manual thoroughly before using this product so that you will understand and use product correctly. Please verify that the contents of this are correct before installation on the vehicle

Foreword

- Replacing exhaust systems entails dangerous work that only mechanics with specialized training should perform in an automobile service shop with adequate facilities. For untrained customers to install an unfamiliar product could be dangerous as it could result in injury and/or severe burns. Please request a specialist service shop to do the installation.
- Do not perform any illegal modifications on this product, such as cutting the pipe and/or removing the internal components of the muffler.
- Our company shall not bear any responsibility should you, the customer, or a third-party cause a breakdown of the product and its auxiliary product through modification or disassembly, or for damages caused by problems resulting from its misuse.
- This product and its parts may be revised without warning to the customer.
- Due to regulations, it is not legal to drive any vehicle with the catalytic converter or any other emission device removed or modified (Unless specified by local regulations).

Product Precautions

- When the engine is turned on or immediately after it is stopped, the exhaust manifold, exhaust pipe, catalyst and muffler are extremely hot. Be extra careful not to touch the section that exits the rear of the vehicle. You may suffer burns if you touch this or any section of the exhaust system. Please note that when you load or unload items from the trunk, your clothing could burn or melt if it touches the tail pipe. Please take caution around the surroundings when you stop or park the car.
- Oil or brake fluid split on the exhaust manifold could burst into flames.
- Exhaust gases contain toxic substances. There is always a danger of carbon monoxide poisoning if you continue to work in a poorly ventilated garage or warehouse with the engine running. Always turn off the engine and check for adequate ventilation before working in an enclosed space. Be especially careful when pets and children are near the installation site. Take note of wind direction when running a vehicle near people.
- This aftermarket exhaust improves exhaust efficiency and enhances the performance characteristics of the vehicle. Make certain that the brakes have been serviced completely and verify the brake performance and safety check all under carriage components.
- This exhaust system is designed to have a safe clearance from the road surface with the vehicle at standard (stock) height. Therefore, if the vehicle is modified and body height is lowered to an extremely low level, the muffler could become damaged or may damage other objects when it comes in contact with the road surface or protruding objects. Please do not lower the height of the vehicle to extreme levels because exhaust gas could leak from a damaged exhaust system.

- Even if parts in the emission system are used correctly, there is the possibility of deteriorating sound muffling performance from toxic substances in the exhaust gases or corrosion causing holes in the product depending on the usage of the automobile. If this is the case, please consult promptly with your dealer or service shop. If the product had lost its original capabilities, please have it exchanged with the same product. If corrosion is left untended, this could cause fire from leakage of exhaust gas under the lower part of the chassis. Moreover, the driver could be fined for driving a poorly maintained vehicle.
- It is the legal responsibility of the driver to safely upkeep his/her car. Periodic inspection and service is essential for safety and to prevent pollution. Be certain that routine inspections are made as well as periodic inspections and parts replacement if necessary.
- While the product of our company uses carefully selected materials, and the product is manufactured under strict quality control standards in consideration of durability, the product could corrode and develop holes at an unexpectedly early stage if the vehicle is driven under adverse conditions. Moreover, the product could be hit by small rock and other road debris that may damage or cause holes in the product. Please be very careful because this could cause leakage of exhaust gases.
- The law prohibits the removal of the catalytic converter or removing the interior components of it. Please refrain from such action as this could lead to environmental pollution.
- Exhaust components on automobiles sometimes reach very high temperatures. Do not leave the vehicle over dry grass or other flammable materials with the engine running or even after immediately turning off the engine. This could cause a fire. Please stop or park your vehicle in an area where there are no flammable objects under the vehicle.
- When using your vehicle, refrain from revving or idling the engine for extended periods of time. This could cause deterioration of the sound muffling material in the muffler. The heat from stagnant exhaust could cause breakdowns of electrical parts and auxiliary parts in the engine compartment.
- Do not store or leave vehicle in humid areas or where salt is prevalent. This could cause deterioration and corrosion of parts.
- Please understand that using your vehicle in various types of races, circuit runs and other special use could markedly lower the durability of the product.

Installation Precautions

- When installing the product, make sure all instructions are followed precisely. Use a torque wrench and tighten the screws to the regulation (factory) torque so as to prevent the screws from loosening while the vehicle is in operation.
- Exhaust manifolds and catalytic converters can become extremely hot during usage. Coming in contact with a hot exhaust system may result in severe burns. Only work on the vehicle after it cools down. Please use heat-resistant gloves during service to prevent burns.
- Rust may make it difficult to loosen the nuts and bolts on the exhaust system. Use a spray-type lubricant and the correct tools to loosen the nuts and bolts and refrain from using excessive force that may cause the nuts and bolts to break. Always use heat-resistant gloves to prevent injury to hands.
- Exhaust system replacements are usually performed underneath of the vehicle. It is dangerous to replace the system if the lifted vehicle is in an unstable condition. Be certain to work safely by using a specified lifting machine for vehicles. Never work underneath of the vehicle lifted only by a standard car jack, as this could be extremely dangerous.
- Replacing of an exhaust system entails simultaneous tightening of nuts and bolts located separately, and working in situations where a heavy system is supported from below. Therefore, working alone could be very dangerous. Always work with two or more persons.
- Be careful to maintain the proper clearance when installing a new exhaust system. Please be particularly careful when working near brakes, fuel line, drivetrain and electrical systems.
- If you find cracks and other deterioration in the rubber exhaust hangers, replace them with the vehicle manufacturer's new standard parts.

- After the standard (stock) exhaust system is removed, disassemble them into shortest possible pieces and store them horizontally to allow for and moisture dissipation.
- In some instances it may be necessary to cut the stock exhaust into two pieces to remove it. The factory exhaust was installed before the rear suspension was installed on the vehicle. The replacement HKS exhaust system will bolt directly on and does not require any modification(to the vehicle or the exhaust system).

Installation Procedure

1. Removal of Stock Exhaust System

- Lift up the vehicle (Use a lift specified automobiles).
- Remove the stock exhaust system in accordance with the vehicle manufacturer's repair manual.

2. Temporary Installation of Intermediate Pipe

- Insert the included gaskets onto the stud bolt protruding from the flange in the catalyst section. Install the front flange of the intermediate pipe by placing the pipe in the correct position. Install the nut and temporarily tighten it.
- Slide the rubber hanger over the suspending hook attached to the intermediate pipe. Reuse the stock rubber hanger or replace it with a new one if necessary.

3. Temporary Installation of Main Muffler

- Place the main muffler in the correct position and attach the suspension hook on the main muffler to the stock rubber hanger.
- Install the included gaskets between the rear and front flanges of the intermediate pipe. Place the plain washer onto the attached bolt and insert the bolt from the front end while inserting from the opposite side the attached plain washer, spring washer and nut. Temporarily tighten the nut.

4. Complete System Installation

- Verify the interrelated positions of the intermediate pipe, main muffler, clearance between the floor of the vehicle and the exhaust, cross member and other peripheral parts and the slippage of the gasket between the flanges. Tighten the bolts and nuts starting in the front of the vehicle in accordance with the designated torque (See the factory service manual for correct torque specifications).
- Verify the position and clearance of the tip and the vehicle's bumper. If they are not correct, retighten them from the beginning. If there is insufficient clearance, this could cause abnormal noise, or the bumper could melt by the heat if the bumper is made of plastic.

5. Verifying a Correct Installation

- When the entire system has been completely installed, shake the exhaust system with your hand again to verify the clearance of each section.
- Start and warm up the engine, and rev it up to about 2,500 rpm and check for exhaust leaks from the respective flanges and for abnormal noise or vibration from various sections.
- Test drive the vehicle and inspect the system again for exhaust leaks from the flanges and abnormal noises.
- If any problems are found, recheck the installation process, disassemble and install the system all over again if necessary.

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GT-R R35 VR38DETT 3-Stage Exhaust System

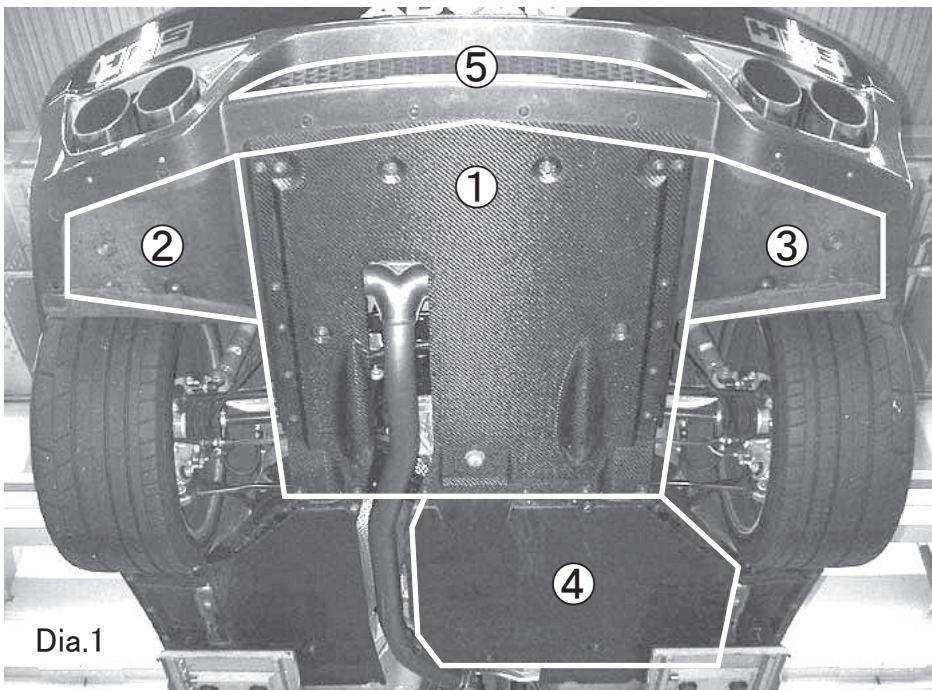
Installation Procedures

 **Warning:** Protect against injuries & burns.

※” Factory parts” means the genuine parts Nissan provides.

1. 『1. Removal of Factory Parts』

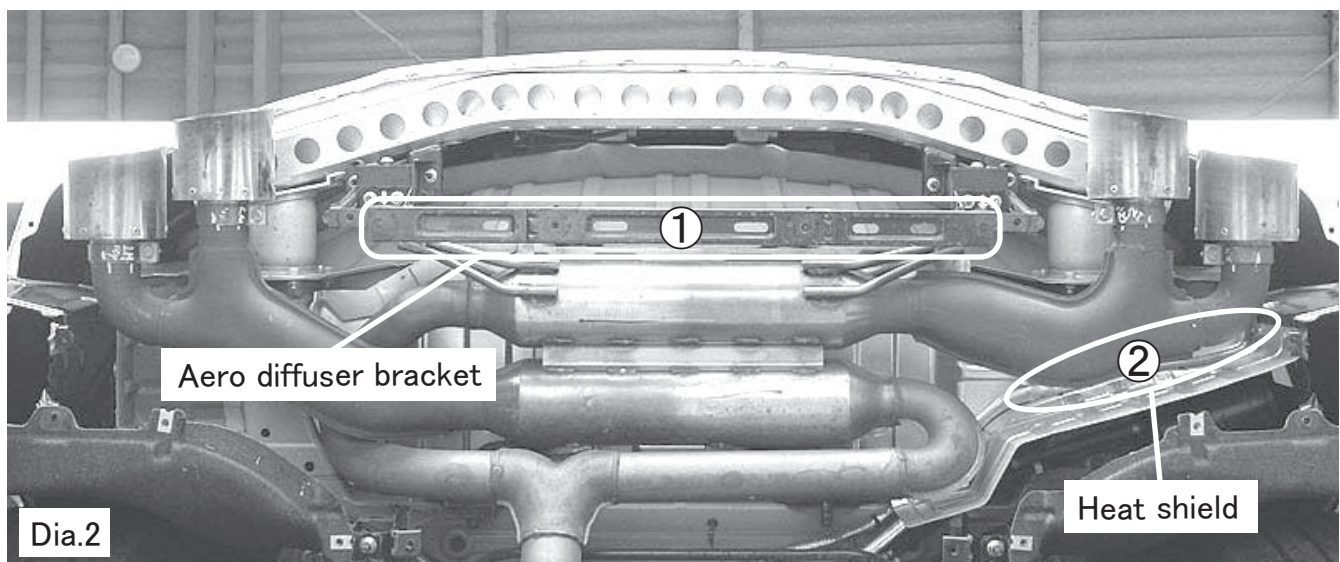
(1) Remove four under covers. (Dia.1 ①~④)



(2) Remove the rear bumper.

(3) Remove the under cover bracket. (Dia.2 ①)

(4) Remove the factory muffler.



NOTE

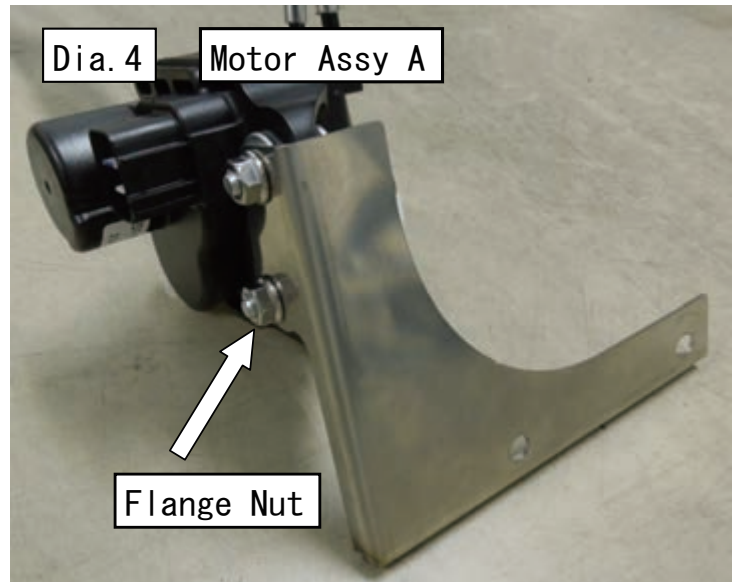
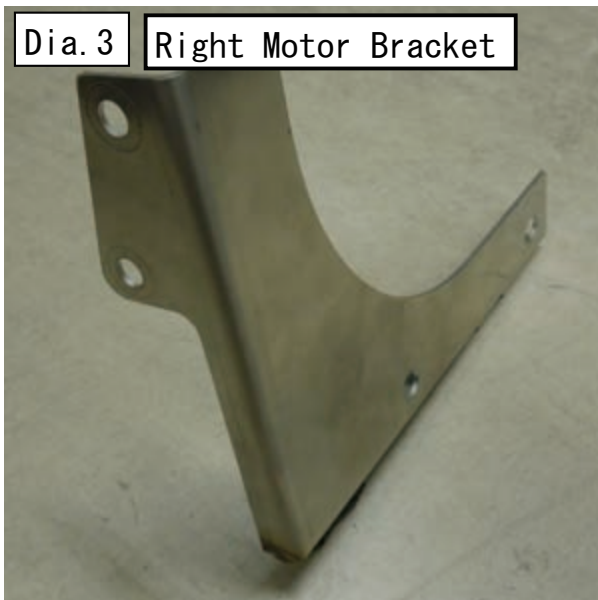
For the model that has a carbon rear under cover (Dia.1 ①) with a cooling duct, Spec V and standard grade (2009/12-), the following modification is required since the aluminum air guide on the back of the under cover comes in contact with this product: Cut the air guide to keep clearance at least 15mm between the air guide and this product.

2. 『Installation of Geared Motor』

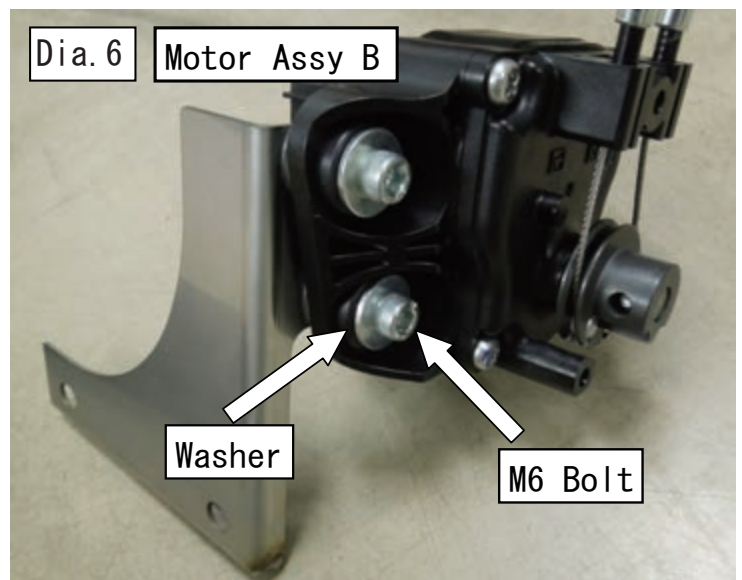
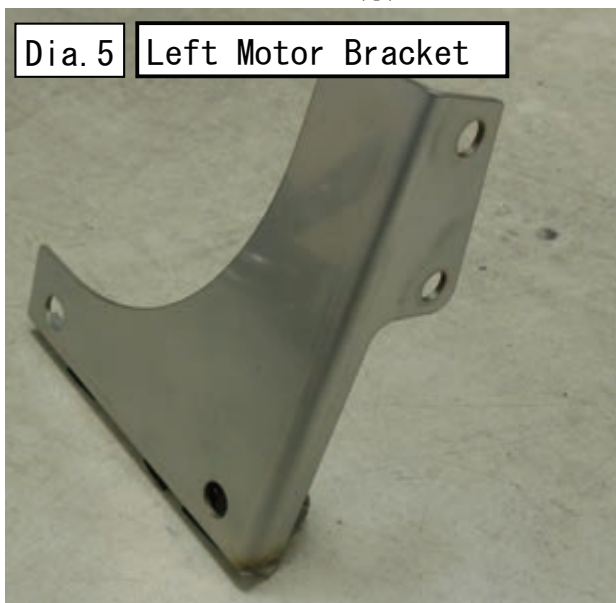
(1) Install the Geared Motor to the Motor Bracket.

Tightening Torque M6 : $T=4.2\sim6.3\text{ N}\cdot\text{m}$
($T=0.4\sim0.6\text{ kgf}\cdot\text{m}$)

※ Motor Bracket (Right Side of Vehicle)

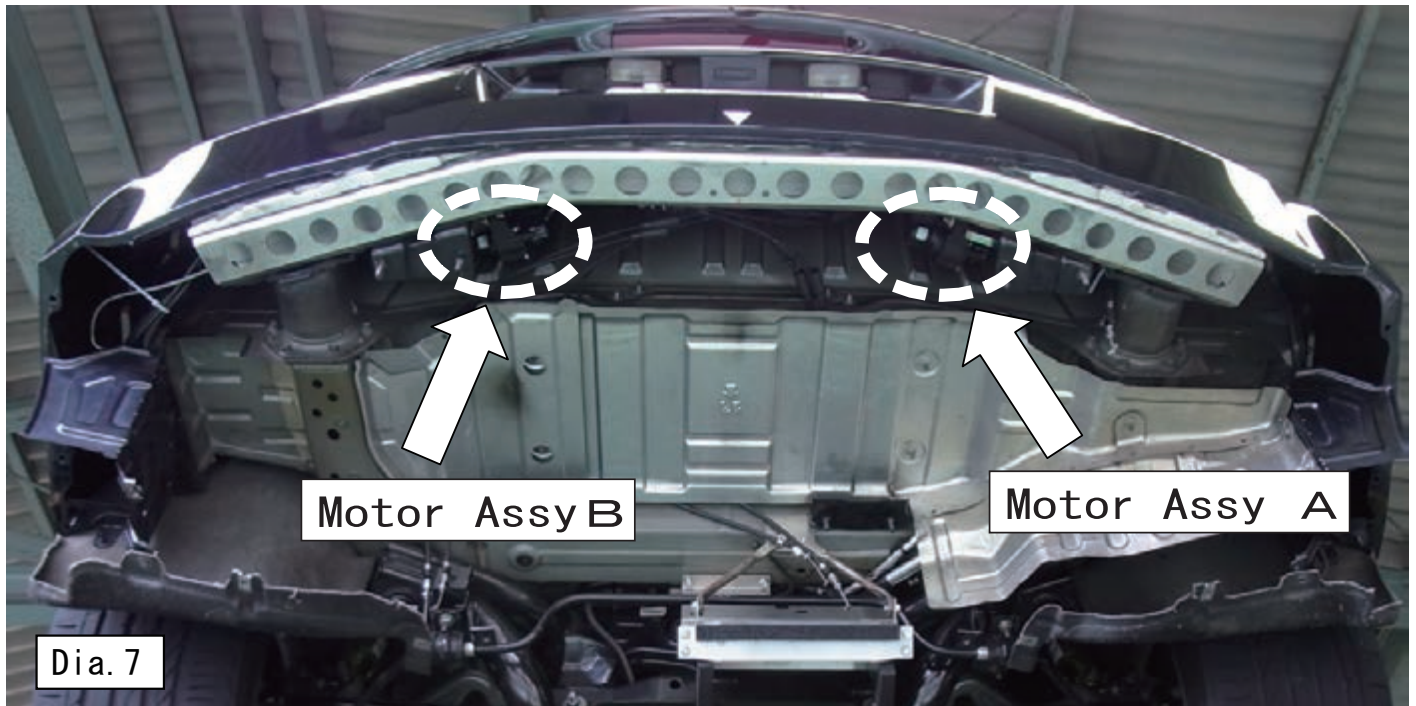


※ Motor Bracket (Left Side of Vehicle)



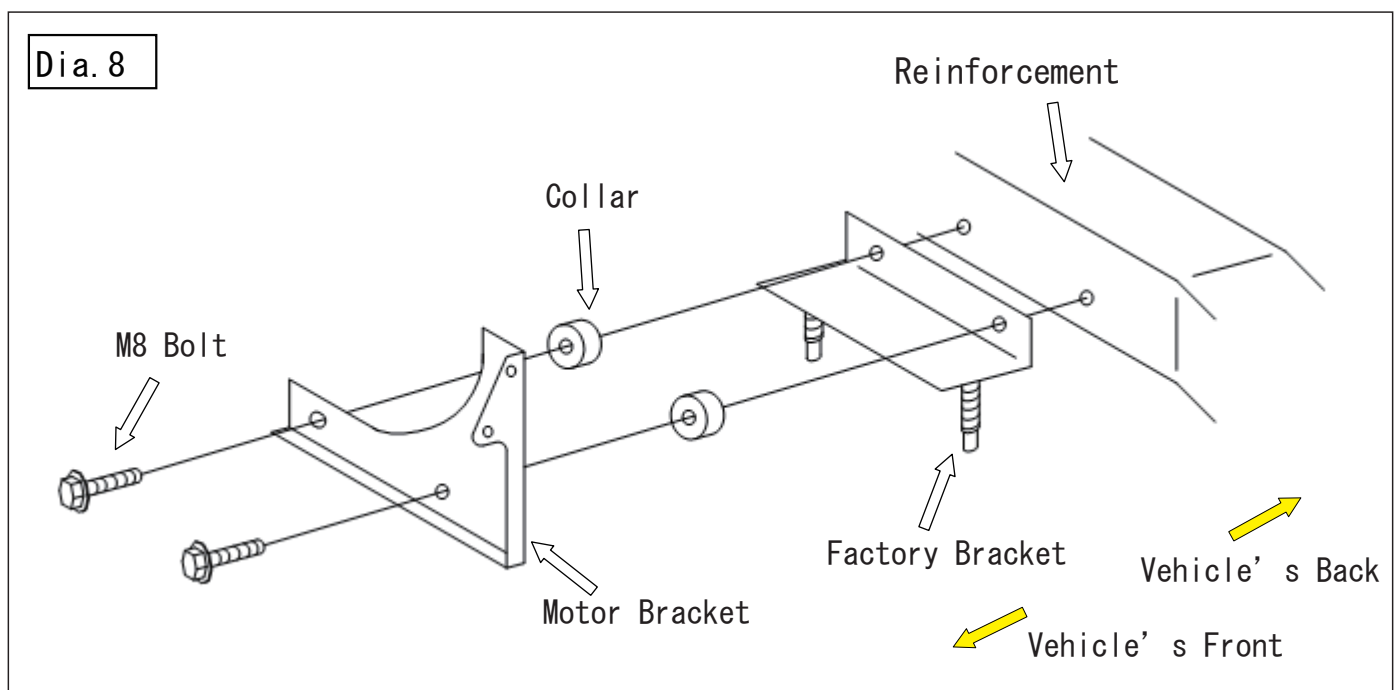
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(2) Install the motor assembly (Geared Motor & Motor Bracket) to the circled positions in Diagram 7.

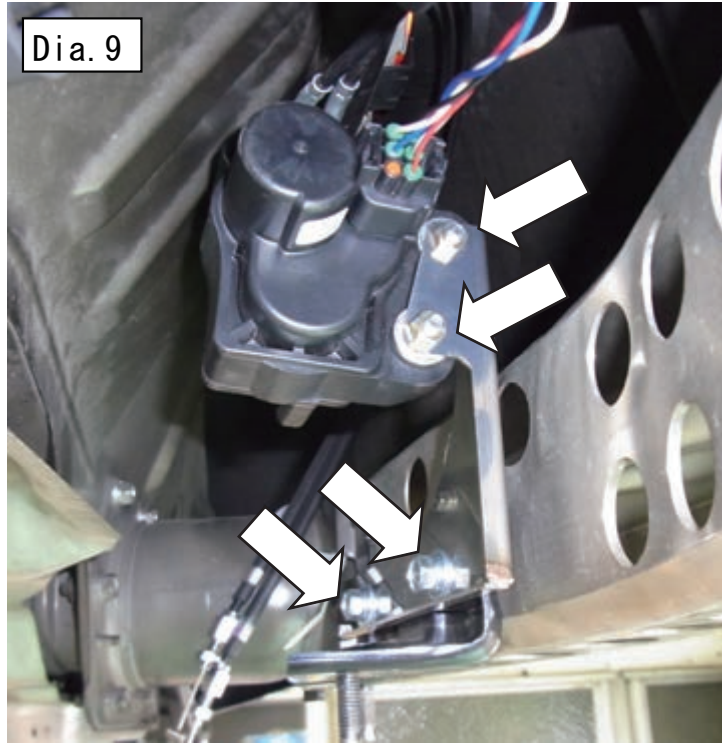


(3) Install the parts to the reinforcement as shown in Diagram 8.

Tightening Torque M8: $T=9.5\sim 12.5\text{ N}\cdot\text{m}$
($T=1.0\sim 1.3\text{ kgf}\cdot\text{m}$)



* Vehicle' s Right (Motor A)




* Vehicle' s Left (Motor B)



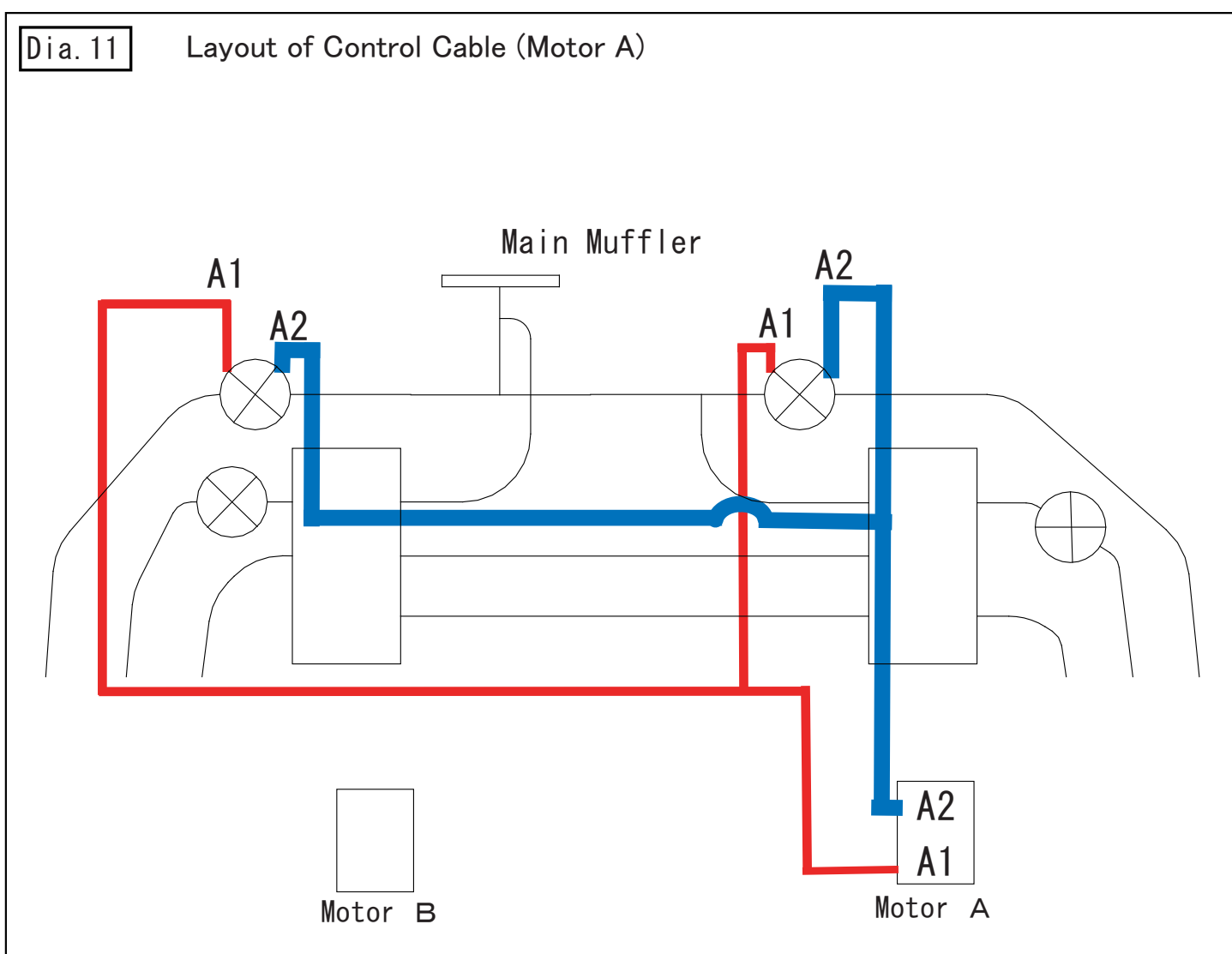
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3. 『Layout of Control Cable and Motor Harness』

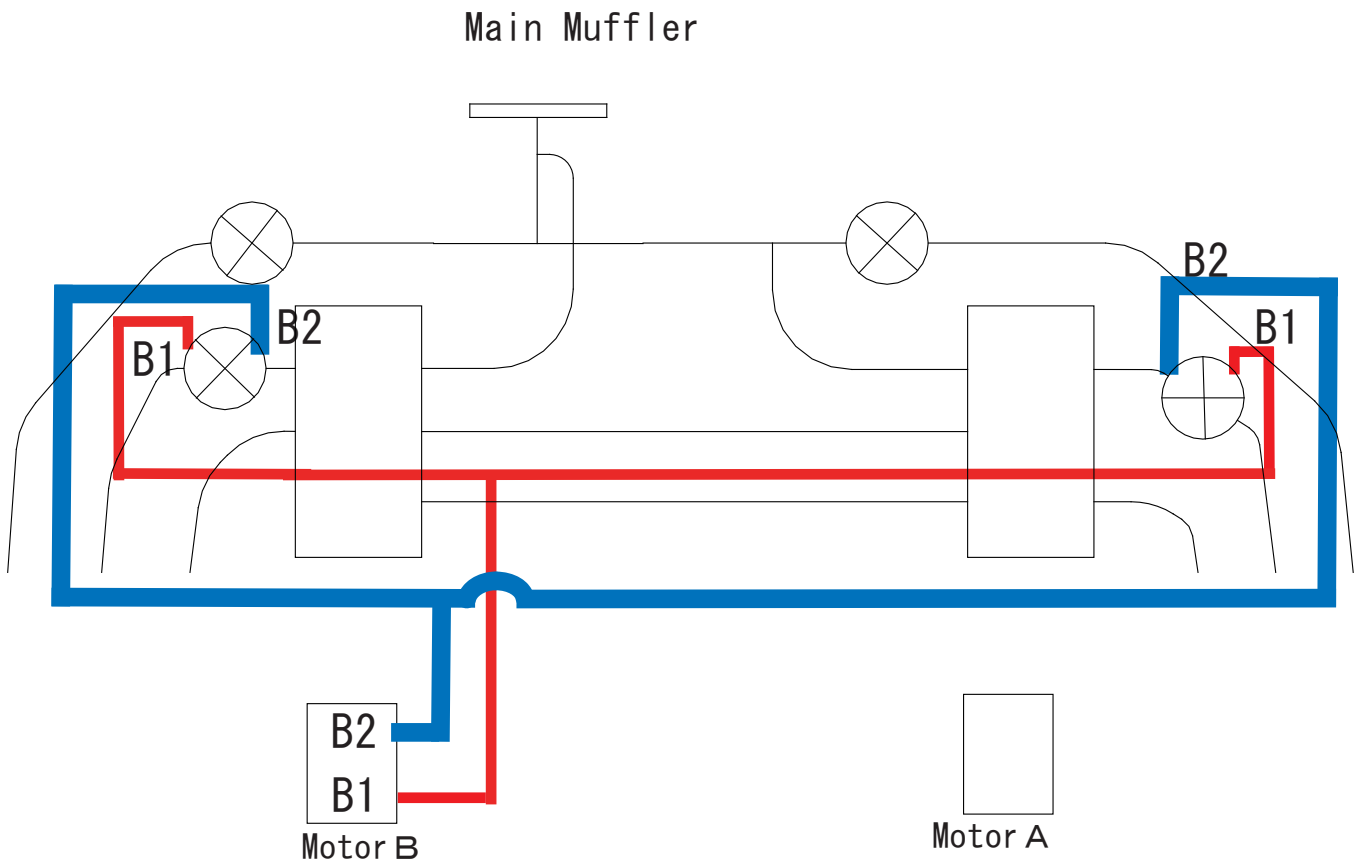
(1) Route the Control Cable as shown in Diagram 13 and 14. Make sure to route the motor harness away from the exhaust pipe since the pipe is extremely hot. Pull the harness into the trunk through a hole of the vehicle's body, and connect it to the controller.

 CAUTION	● When routing the Control Cable and motor harness, make sure to avoid high temperature areas. It is recommended to route them inside the factory insulator.
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ADVICE	● Mark the Control Cable so it can be recognized easily.
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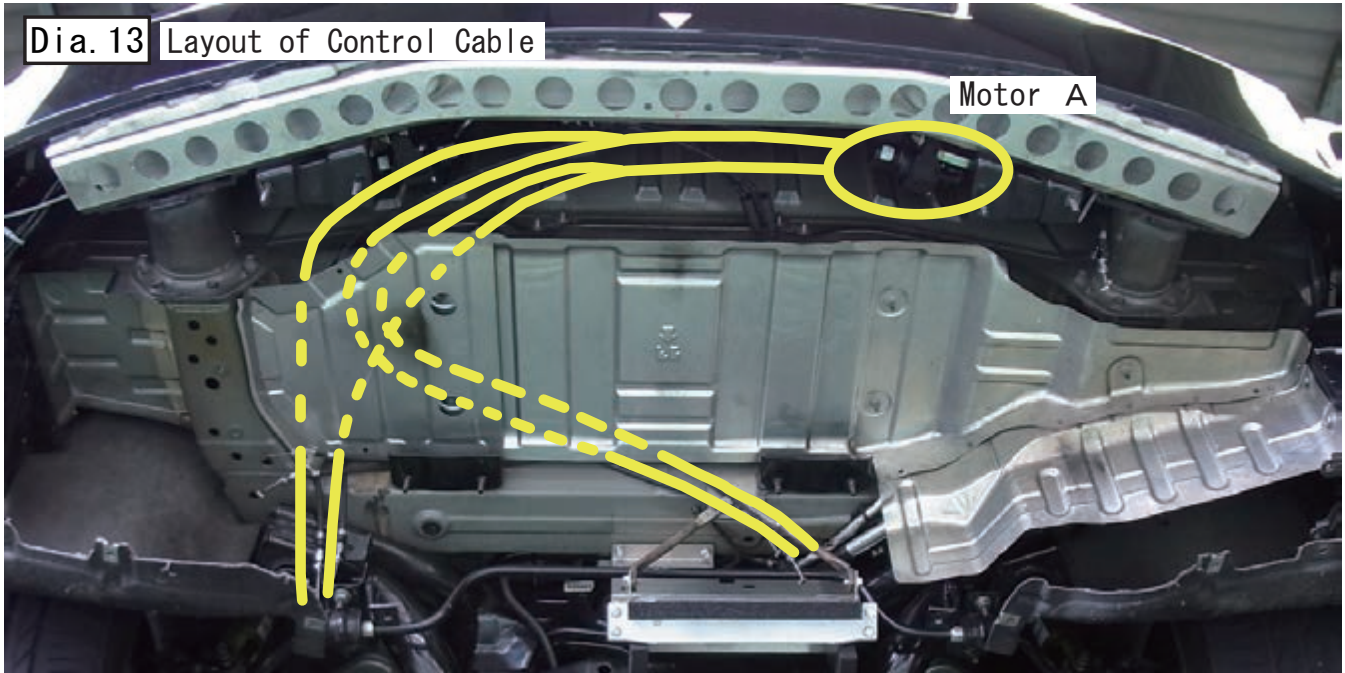


Dia. 12 Layout of Control Cable (Motor B)

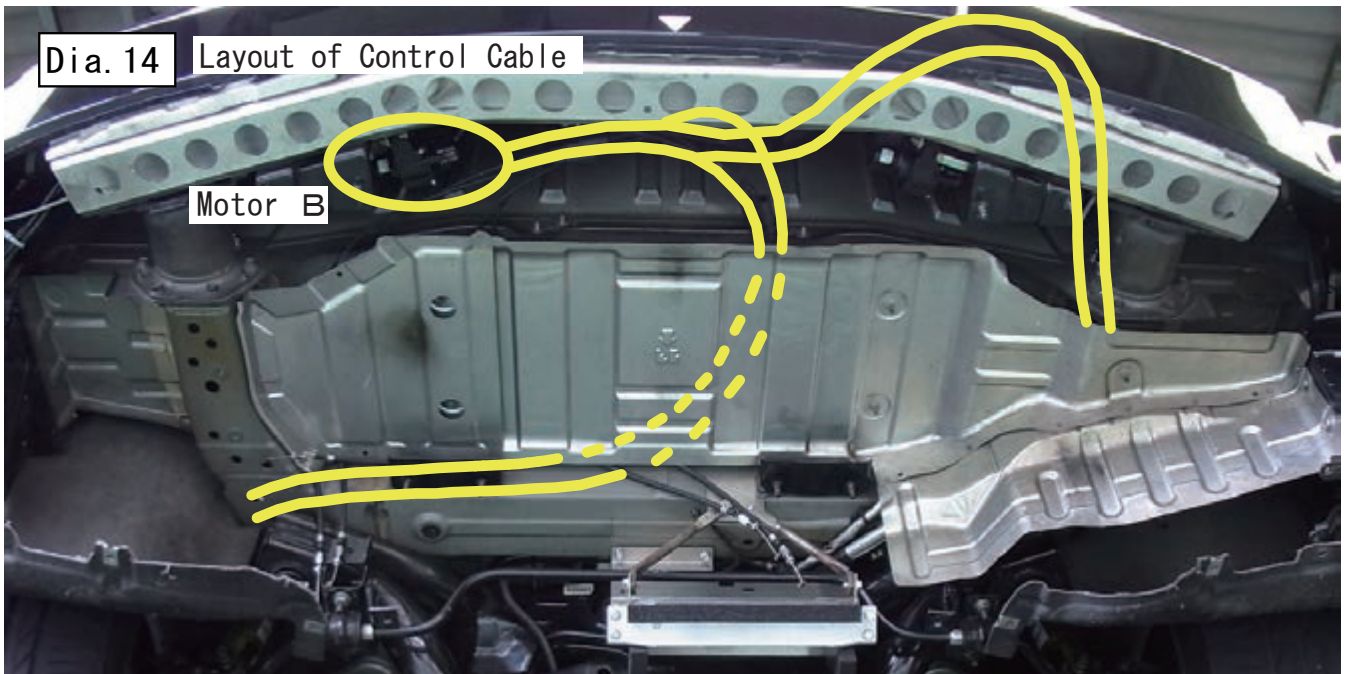


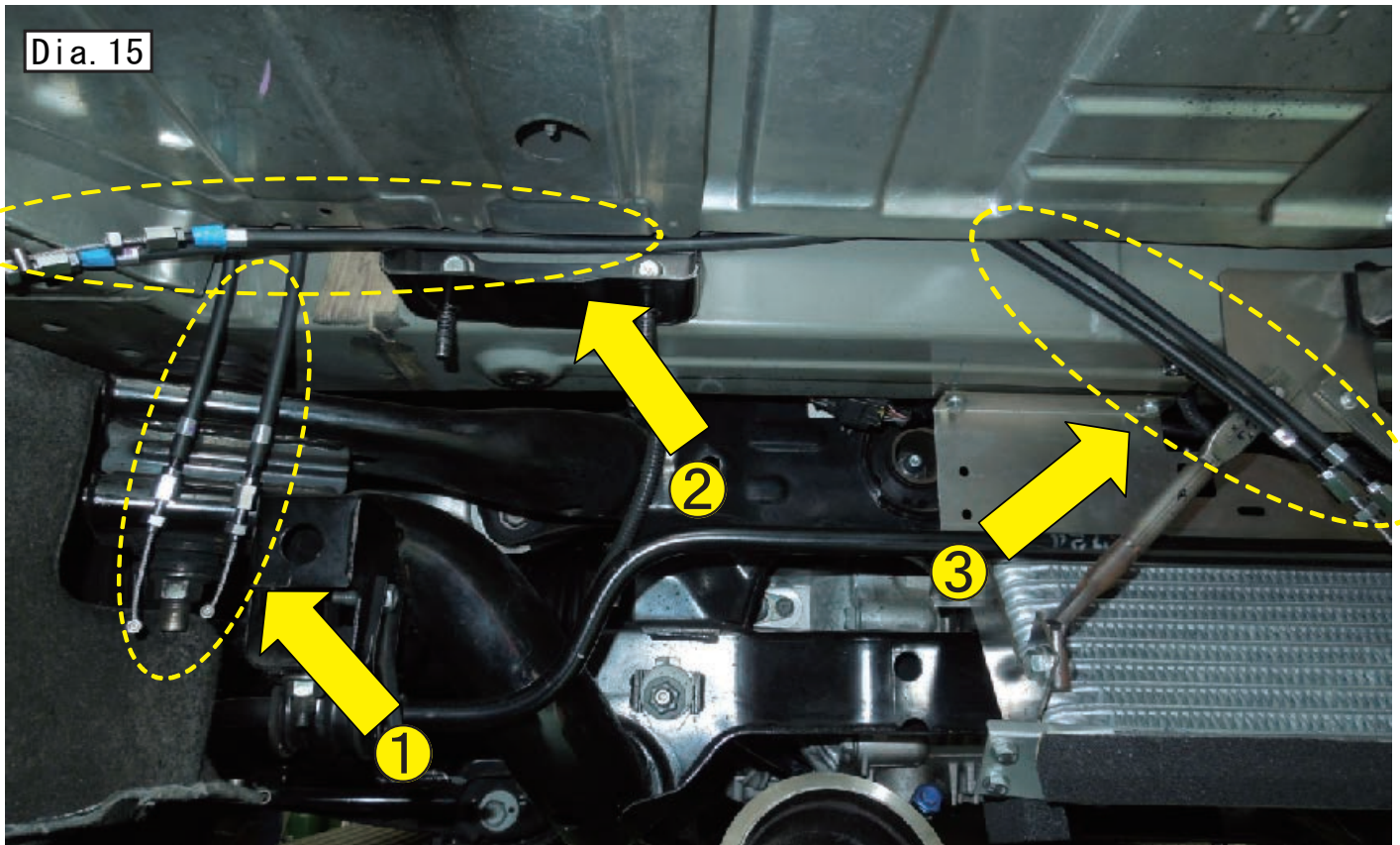
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Dia. 13 Layout of Control Cable



Dia. 14 Layout of Control Cable





(2)Route the Control Cable over the factory insulator.
Make sure route and position the cable as shown in Diagram 15
so connecting the cable to the valve can be easier.

- ①About 200mm
- ②About 300mm
- ③About 260mm

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4. 『Temporary Installation of Mid Pipe』

(1) Install the factory rubber bracket to the hanger attached to the Mid Pipe.

(2) Install the provided 85mm Gasket to the stud bolt on the rear section of the catalytic converter.

Place the Mid Pipe to the proper position and install a front flange. Temporarily install the Mid Pipe using the provided Washer Faced Nut (M8 P=1.25).

5. 『Temporary Installation of Main Muffler』

(1) Install the factory rubber brackets to four hangers attached to the Main Muffler.

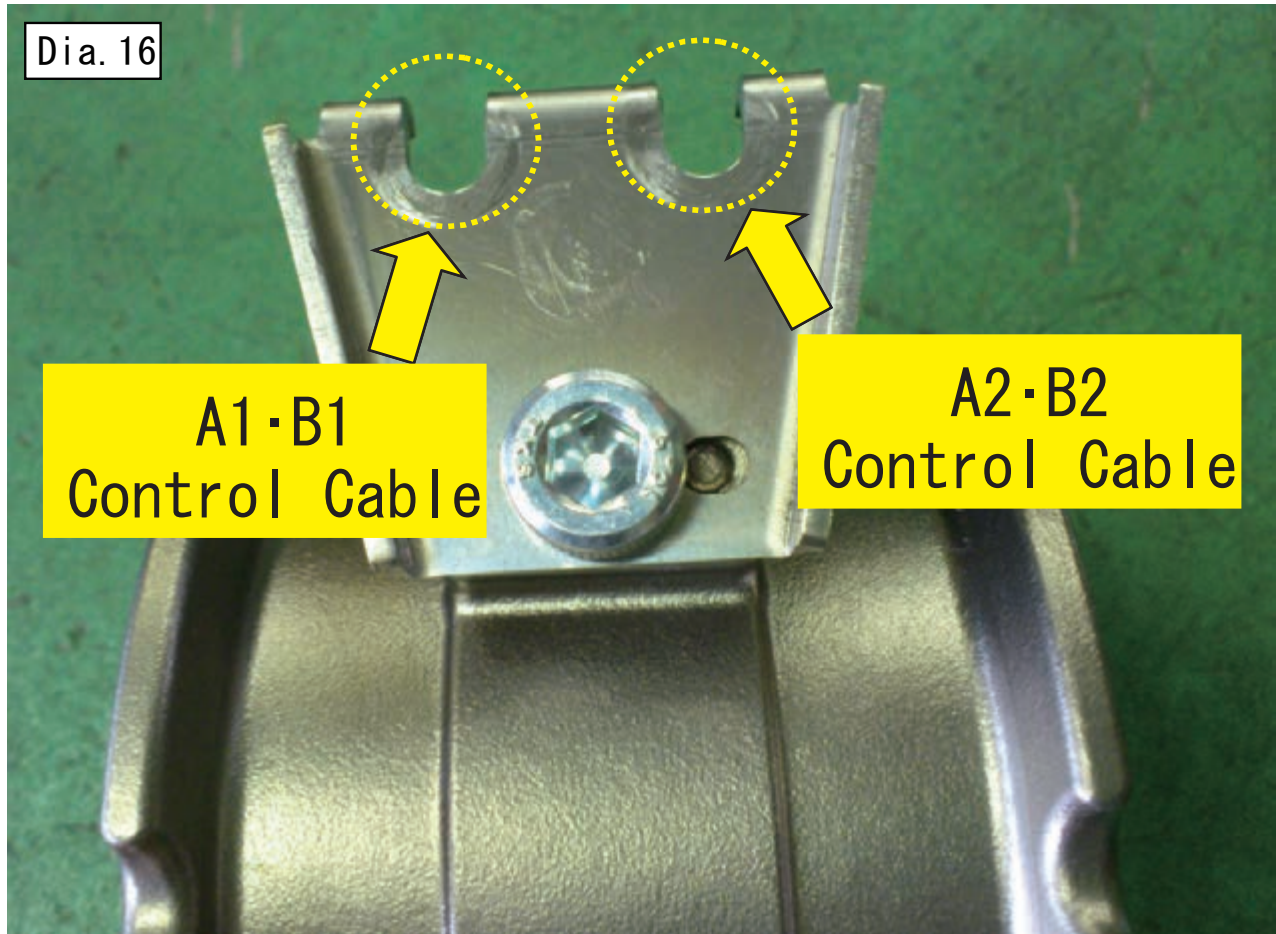
(2) Apply liquid gasket to the flange of the Mid Pipe's rear side and the one of the Main Muffler's front side. Temporarily install the Main Muffler using the provided V-band.

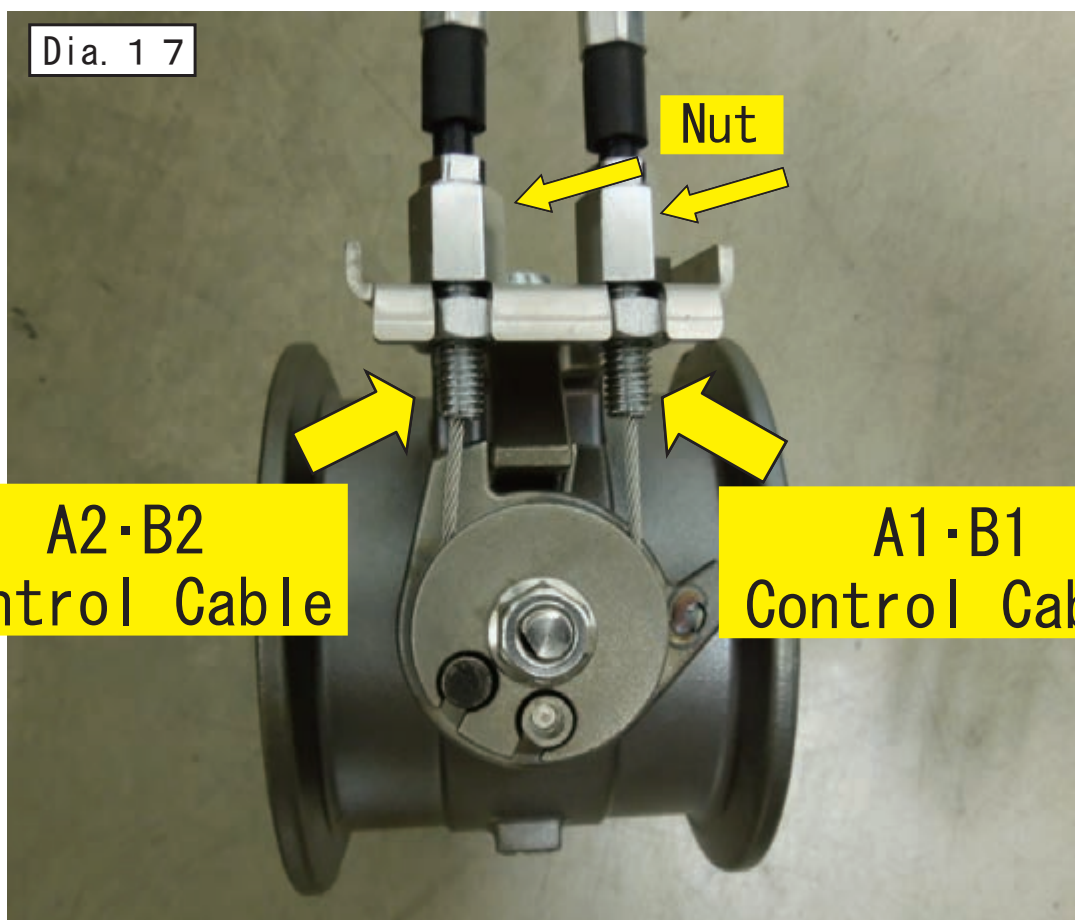
(3) Connect the Control Cable to the valve referring to Diagram 11 and 12. Tighten the nut.

NOTICE

- Make sure to reuse the factory rubber brackets.
- Bend the insulator so adequate clearance (at least 10mm) is maintained between the front of the right exhaust tip pipe (Dia.2 ②) and insulator.

※Control Cable Installation Diagram





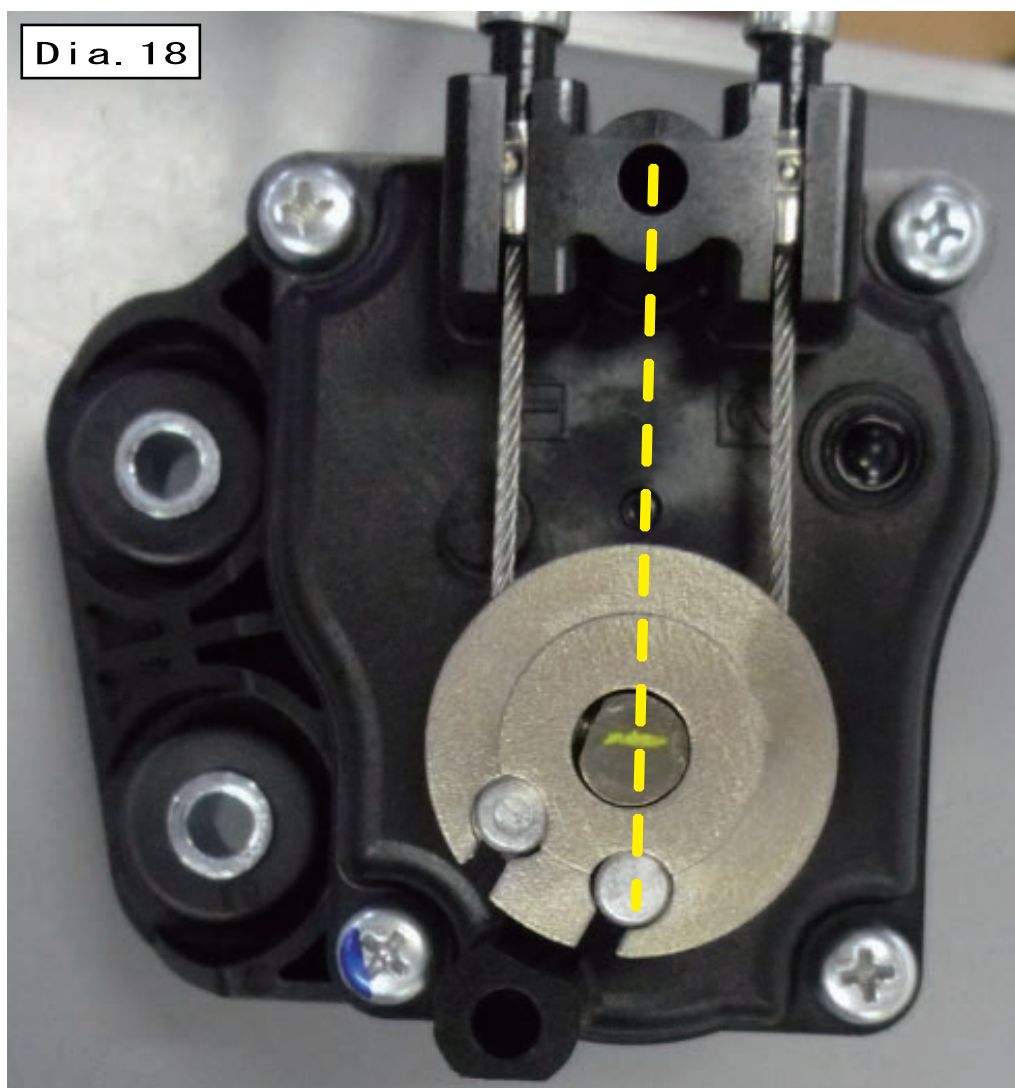
- Make sure to tighten the installation nut.
Tightening Torque M6: $T=4.2\sim6.3$ N·m
($T=0.4\sim0.6$ kgf·m)

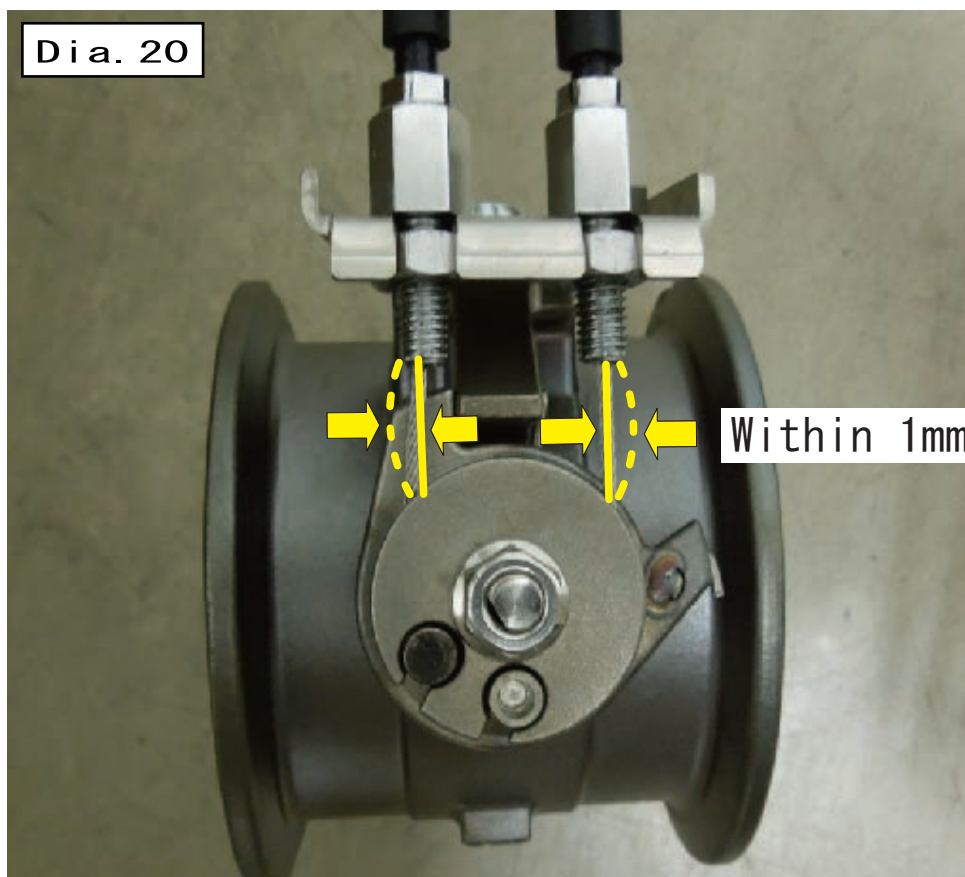
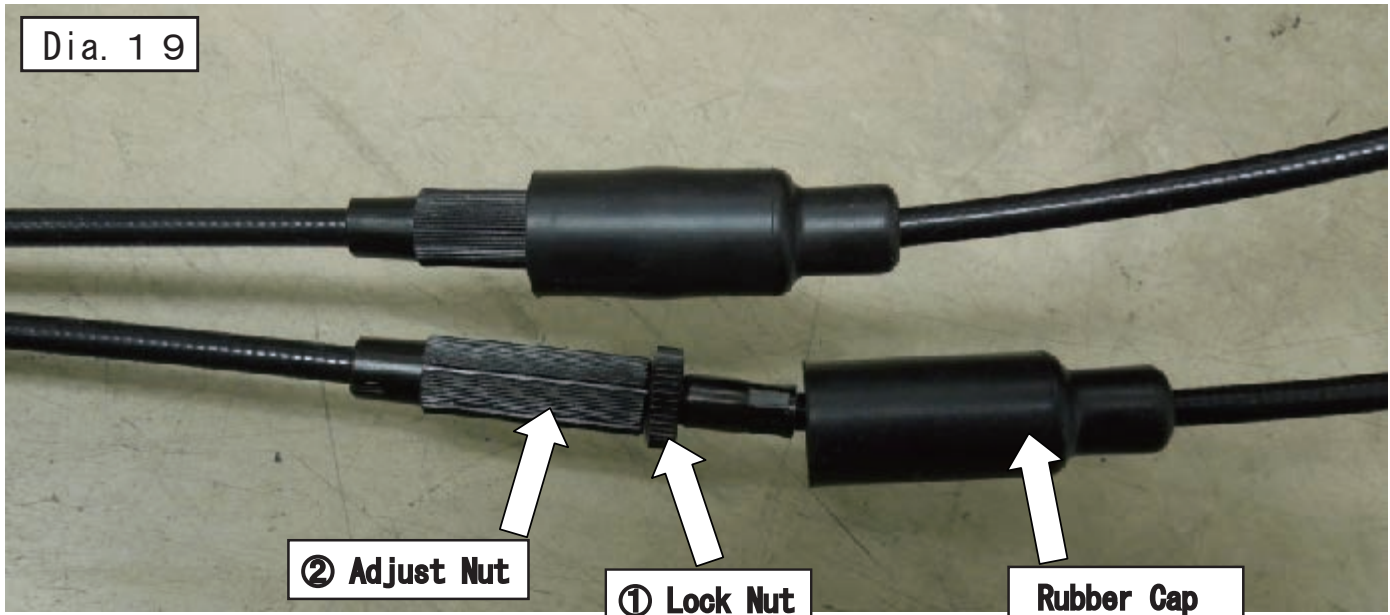
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6. 『Adjustment of Control Cable』


(1) Adjust the position of the pulley on the motor side as shown in Diagram 18.

(2) Slide the rubber cap on the Control Cable as shown in Diagram 19. Adjust the tension of the Control Cable by loosening ①lock nut and rotating ②adjust nut.

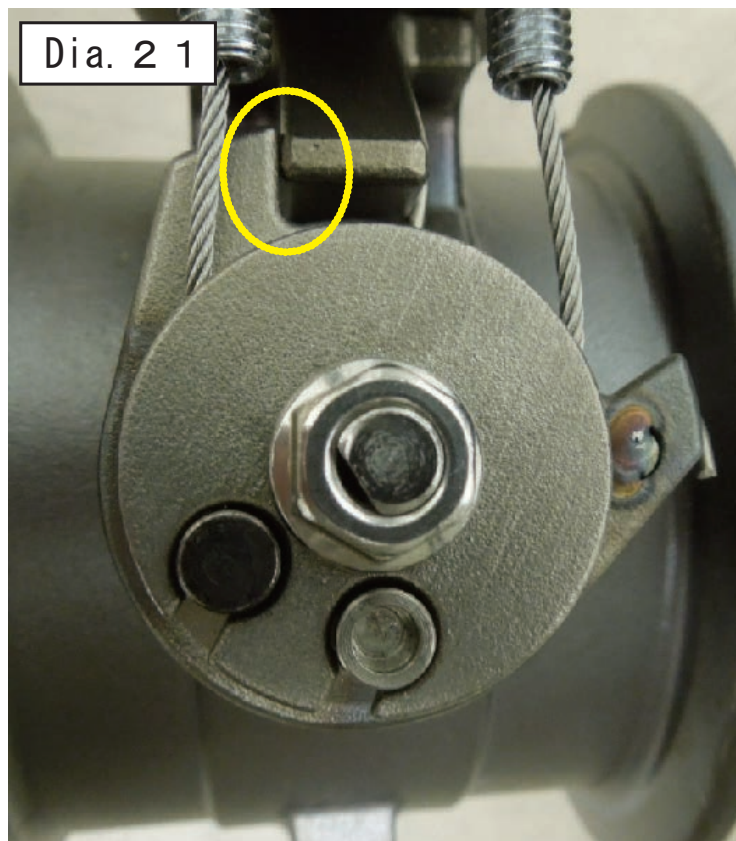




(3) Adjust the tension of the Control Cable using all 4 valves.
 Make sure the flexure is within 1mm when the valves are completely closed.

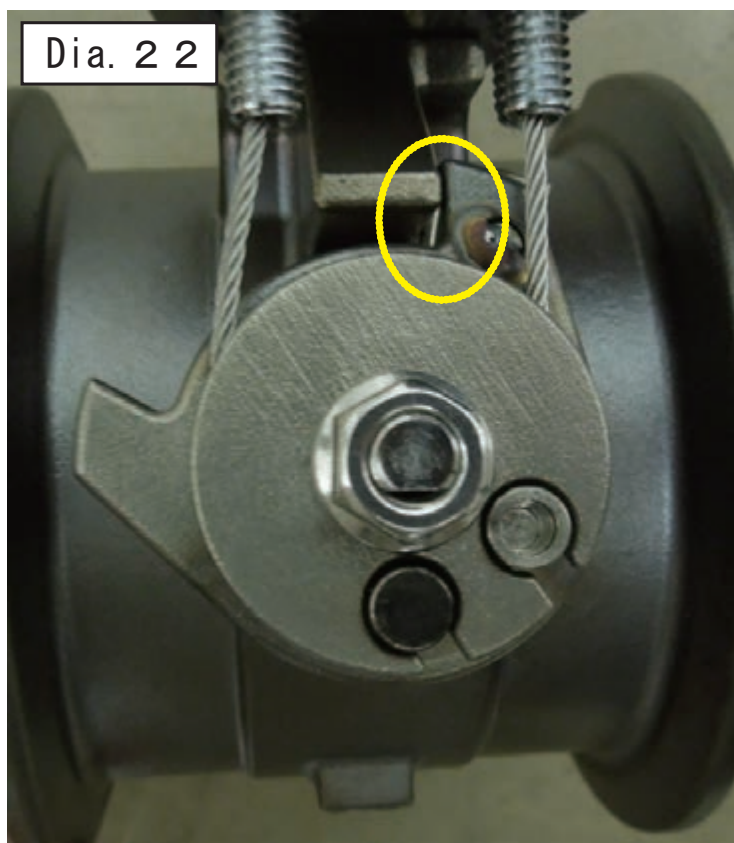
 <p>CAUTION</p>	<p>Adjust the tension of the Control Cable before driving after installation of the product is complete. If the tension is inadequate, it may cause noise and/or improper operation.</p>
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Valves fully open

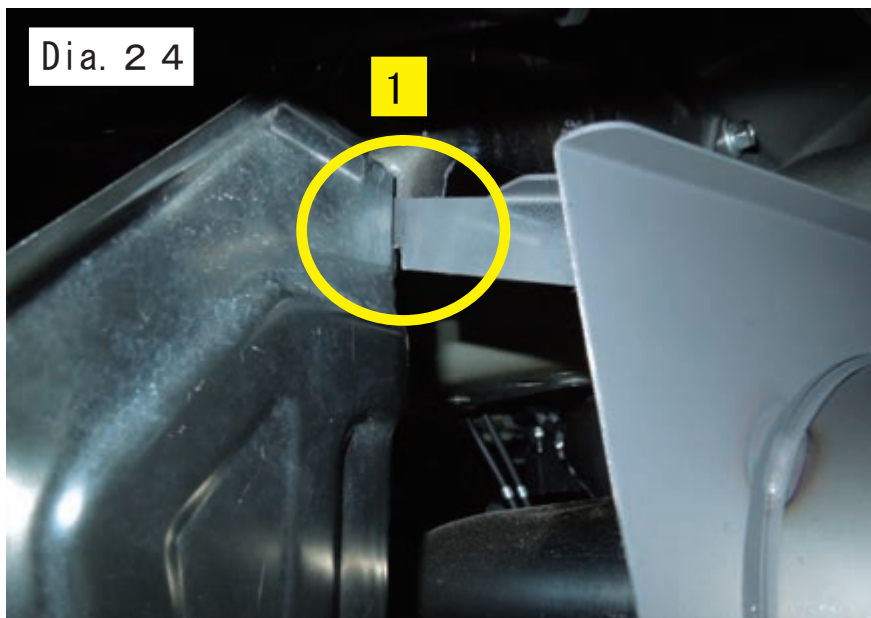
*Make sure the valves fully open till the pulley touches the stopper.



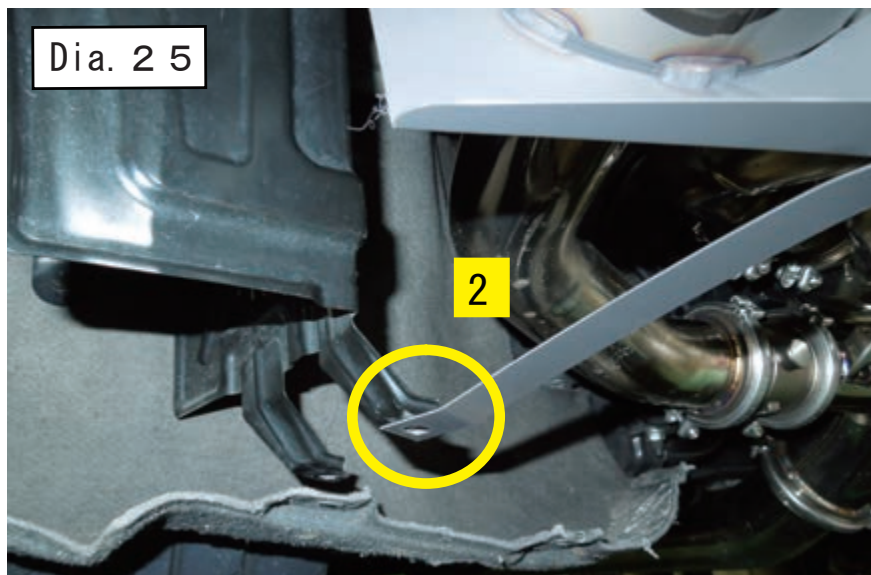
Valves fully close

*Make sure the valves fully close till the pulley touches the stopper.

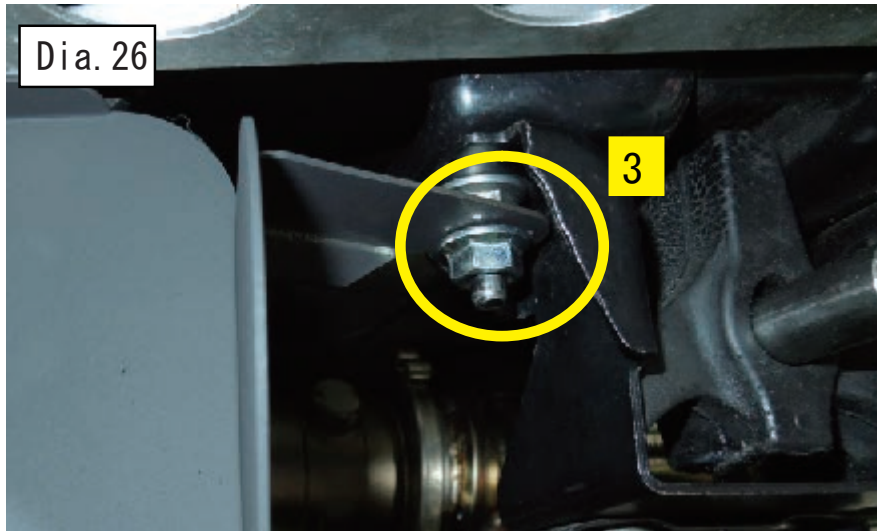
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(2) Put the stud bolt from the vehicle's body to the tip bracket, and place the factory panel on the bracket. Tighten the panel and bracket together using the factory nut.



(3) Insert the tip bracket between the under cover and the panel on the vehicle's body side, and tighten them reusing the factory nut.



(4) Place the tip bracket and provided Washer Faced Nut on the factory nut installing the rubber bracket. Tighten the nut.



(5) Install the rear bumper. Make sure the bumper does not come in contact with the exhaust tips and/or pipes.

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8. 『Installation of Exhaust System』

(1) Tighten all bands to the tightening torque specified below. Tighten the bands from the front to the rear side of the vehicle. When tightening bands, make sure there is adequate clearance between the floor of the vehicle, cross member, and/or any other parts of the vehicle and the positions of mid pipe, main muffler, and gaskets between flanges are properly adjusted.

〔 Tightening Torque M6 $T=4.2\sim6.2\text{ N}\cdot\text{m}$ 〕
($T=0.4\sim0.6\text{ kgf}\cdot\text{m}$)

(2) Make sure there is adequate clearance between the exhaust tips and bumper. Re-tighten bands if necessary. Inadequate clearance may cause abnormal noise.

9. 『Valve Operation』

(1) Change the control switch from auto to manual.

Make sure ① Valve B opens followed by ② Valve A.

※ Make sure the valves fully open till the pulley touches the stopper.

(2) Change the control switch from manual to auto.

Make sure ① Valve A closes followed by ② Valve B.

※ Make sure the valves fully close till the pulley touches the stopper.

(3) If any unusual conditions are noticed during following (1) and (2), adjust the position and tension of the control cable. Repeat (1) and (2) till unusual conditions disappear.

10. 『Reinstallation of Factory Parts』

(1) Reinstall the factory under cover bracket, under cover, and rear bumper.

11. 『Confirmation After Installation』

(1) After installation process is complete, make sure there is adequate clearance around the exhaust system by shaking the exhaust system.

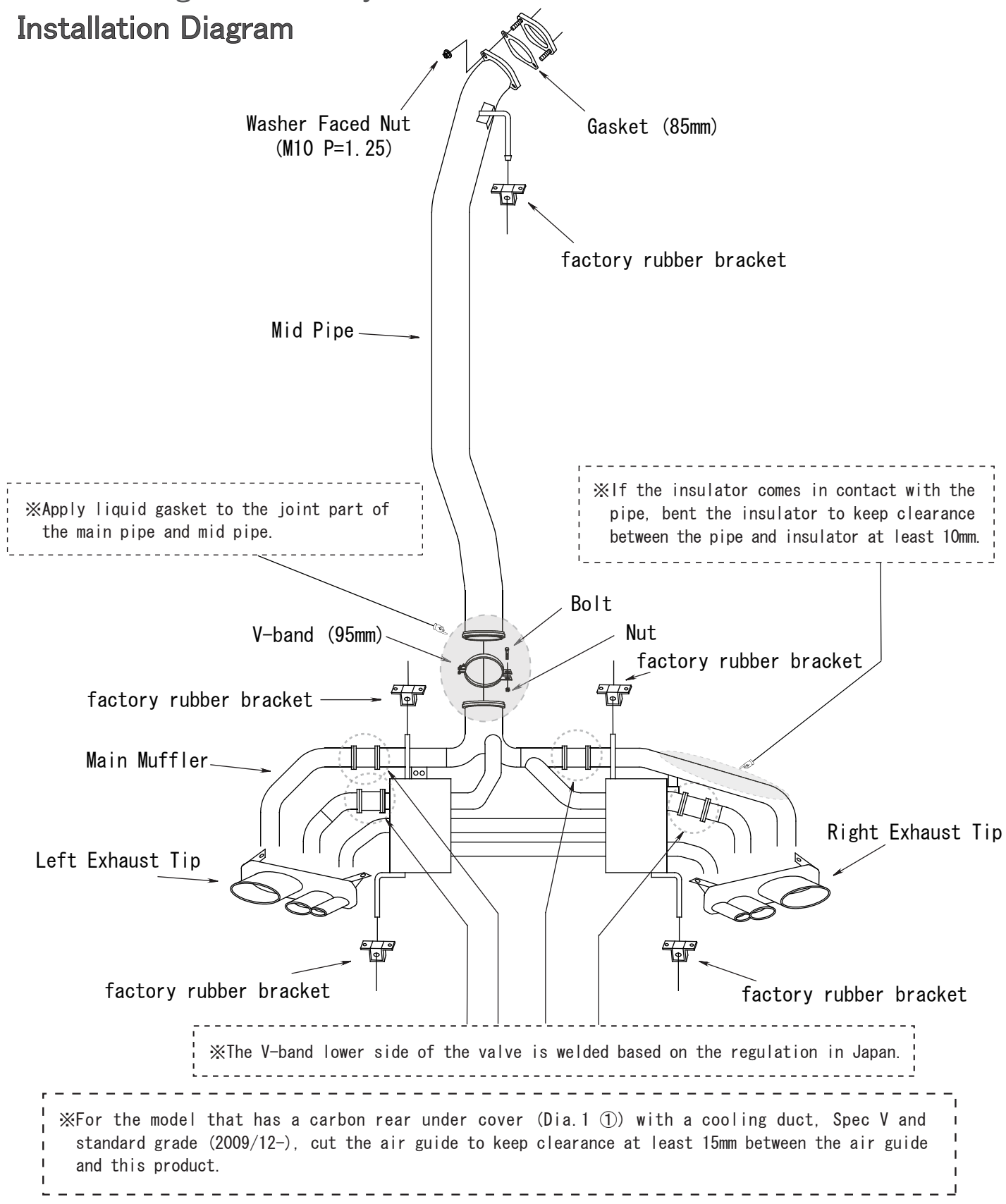
(2) Start the engine and let it idle for a while. Rise the engine RPM to approximately 2500rpm and make sure there is no exhaust gas leak from each flange and abnormal noise from each parts.

(3) After a test drive, check the exhaust gas leak and abnormal noise again.

(4) Readjust the position and tension of the control cable after a test drive. If the cable tension is not adequate, it may cause abnormal noise.

(5) If any unusual conditions are noticed during following (1) and (4), remove the exhaust system and install it all over again.

R35 3-Stage Exhaust System Installation Diagram



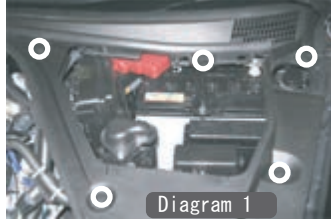
Installation process is complete.

INSTALLATION

1. Disconnect Battery Negative Terminal

- ① Open the car window of both driver and passenger sides at least 3cm.
 ✘ Failure to do so may cause damage to the car window and/or front pillar finisher when closing the door since partial-down window function won't work after the negative terminal is disconnected.

- ② Remove the battery cover.
- ③ Remove 5 clips circled in Diagram 1 and remove the hood-ridge cover.
- ④ Disconnect the negative terminal from the battery.

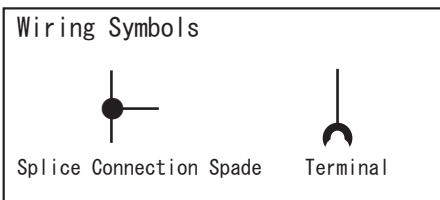


2. Install the Crimp Connectors

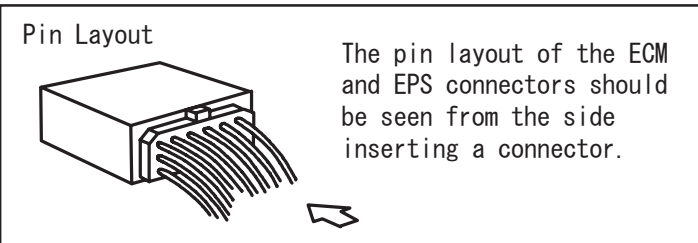
- ① Strip about 5mm of wire insulation.
 Strip 5mm of insulation.
- ② Connect another wire to the uncovered portion by twisting the wires together.
 Twist wires together.
- ③ Crimp the twisted wires using a crimp connector.
 Crimp the wires using a crimp connector.
- ④ Cover the crimp connector and wires with electrical tape to insulate.
 Insulate with electrical tape.

3. Explanatory Note of Wiring Diagram

3.1 Wiring Symbols

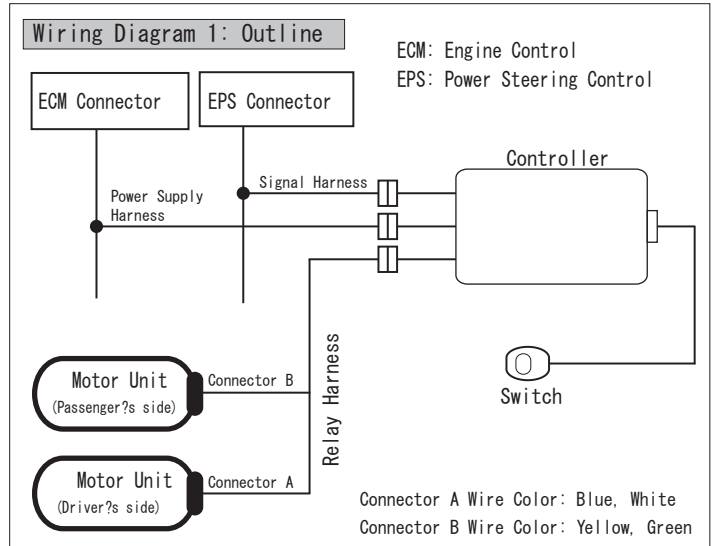


3.2 Connector Pin Layout



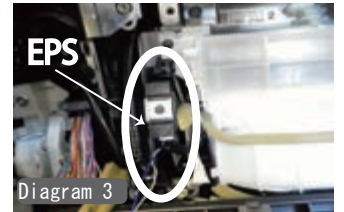
4. Wiring

4.1 Wiring Outline



4.2 Location of ECM and EPS

Make sure the ECM (Dia.2) and EPS (Dia.3) are located under the lower instrument assist panel in a front-seat foot area of a passenger compartment.

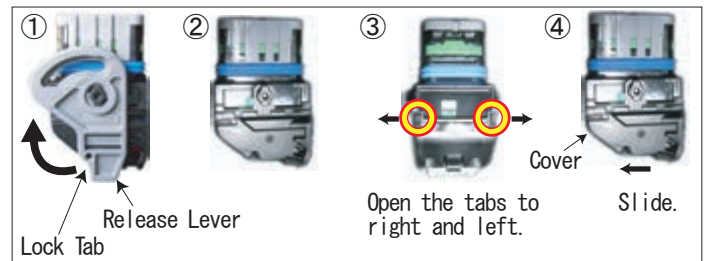


4.3 Take out ECM

Take out the ECM from under the lower instrument assist panel in a front-seat foot area of a passenger compartment.

4.4 Disconnect ECM Connector of ECM

Disconnect the connector from the ECM.

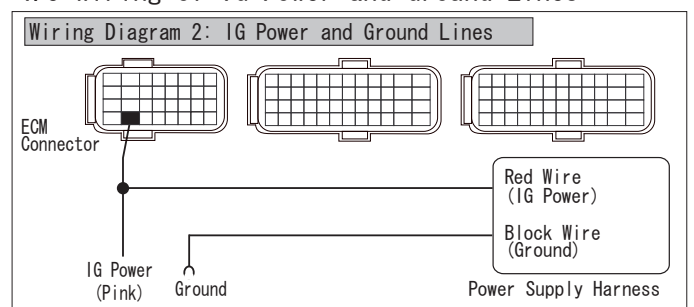


- ① Move the release lever to the direction of the arrow in the diagram above as pressing the lock tab.

As the release lever moves, the connector is loosened and removed from the ECM.

- ② Remove the release lever from the ECM connector.
- ③ Open the tabs circled in the diagram above to right and left.
- ④ Slide the cover to the direction of the arrow in the diagram above and remove the connector.

4.5 Wiring of IG Power and Ground Lines



①Wiring of IG Power Line

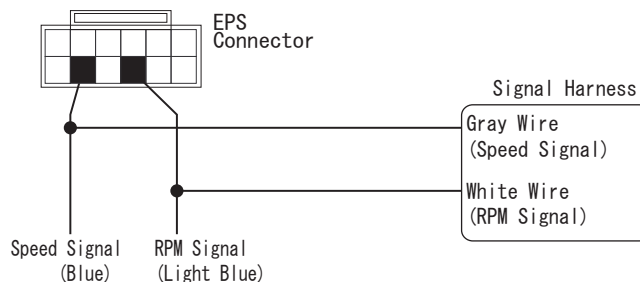
- Make sure the position of the IG power line of the ECM connector referring to the wiring diagram 2.
- Connect the red wire (IG power line) of the power supply harness to the IG power line of the ECM connector using a splice.

②Wiring of Ground Line

- Connect the spade terminal attached to the black wire (ground line) of the power supply harness to a screw that has direct contact with a chassis ground.

4.6 Wiring of RPM Signal and Speed Signal Lines

Wiring Diagram 3: RPM Signal and Speed Signal Lines



①Wiring of RPM Signal Line

- Make sure the position of the RPM signal line of the EPS connector referring to the wiring diagram 3.
- Connect the white wire (RPM signal line) of the signal harness to the RPM signal line of the EPS connector using a splice.

②Wiring of Speed Signal Line

- Make sure the position of the speed signal line of the EPS connector referring to the wiring diagram 3.
- Connect the gray wire (speed signal line) of the signal harness to the speed signal line of the EPS connector using a splice.

4.7 Wiring of Relay Harness

- Connect the side of the connector that a sticker "A" attached to the 6-pin connector harness tube to the motor unit on the driver's side. (Wire color is blue and white.)
- Connect the side of the connector that a sticker "B" attached to the 6-pin connector harness tube to the motor unit on the passenger's side. (Wire color is yellow and green.)
- Pull the 4-pin connector of the relay harness into the vehicle's interior.

4.8 Wiring to Controller

①Connect Signal Harness

Connect the 2-pin female connector of the signal harness to the 2-pin male connector of the controller.

②Connect Relay Harness

Connect the 4-pin female connector of the relay harness to the 4-pin male connector of the controller.

③Connect Power Supply Harness

Connect the 2-pin male connector of the power supply harness to the 2-pin female connector of the controller.

Mounting

①Mounting Controller and Switch

Mount the controller and switch. Make sure to leave extra slack to the harness.

②Securing Harness

Secure the harness using tie wraps.

※Do not secure the harness at places where the temperature is high.

Post Installation

- Reinstall all removed factory parts.
- Reconnect the negative battery cable to the battery terminal.

Operation

Modes of operation: automatic and manual.
Operation mode changes when the switch is pressed.
When the engine starts, the operation begins with the automatic mode.

1. Automatic Mode

The valve is opened and closed in three stages depending on the engine RPM and speed.

2. Manual Mode

Two valves are always opened.

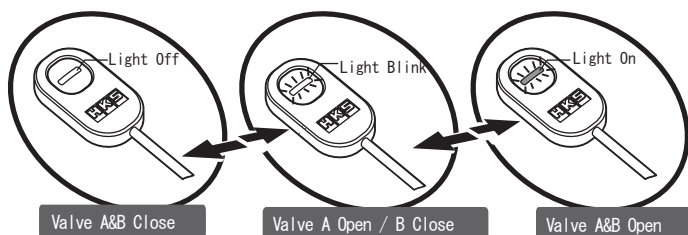
3. Light of Switch

The light on the switch shows the conditions of the valve.

Light Off: Both valve A and B are closed.

Light Blink: Valve A is closed, and B is opened.

Light On: Both valve A and B are opened.



4. Error Detection

- When a motor runs more than 5 seconds, it is considered as the condition that valves cannot be controlled properly. In this case, valve A and B are closed, and valve control is canceled.
- When an error is detected, the light on the switch blinks at high speed.
- If any error is detected, contact your dealer immediately

Confirmation After Installation

After the installation process is complete, check all items listed below to make sure the installation has been done properly.

1. Check the following before starting the engine:

Check Item	Check
Make sure all installed components and wires do not come in contact with any other parts of a vehicle.	
Make sure all wires are properly secured.	
Make sure the negative cable terminal is securely attached to the battery.	

2. Start the engine and check the following:

Check Item	Check
Make sure the CEL does not come on.	
Make sure any check lamp such as ABS, VDC, SLIP, 4WD, KEY, POP-UP HOOD, etc does not come on.	
Make sure there is no excessive stress on any harnesses or wires.	
Make sure the valve A and B are fully opened under the manual mode.	
Make sure the light of the switch changes according to the driving conditions under the automatic mode.	
Make sure all parts are secured properly after turning off the engine.	

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