



Installation Manual

Read this manual prior to the installation.
 After installation, follow the instructions for safe use.
 Installation must be done by a professional.

PRODUCT	GT SUPERCHARGER SYSTEM
PART NUMBER	12001-AT005
APPLICATION	LEXUS LS460 (DBA-USF40)
ENGINE	1UR-FSE
YEAR	2006/09~2009/08

※This application was confirmed by November, 2011.



Kit Installed Vehicle



Kit Installed Engine Compartment

NOTICE

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

REVISION OF MANUAL

Rev. Number	Date	Manual Number	Details
3-3.01	2011/5	E04215-T63010-00	1 st Edition
3-3.03	2012/11	E04215-T63012-00	Instruction revised

Published in November, 2011 by HKS Co., Ltd. (Unauthorized reproduction is strictly prohibited.)

REMARKS

- HKS will not be held responsible for any and all damages to the vehicle's engine or other supplemental devices through the use of this product.
- This kit (12001-AT005) includes the HKS GT Supercharger System Complete Kit base warranty.
- This product has been preset by a specific sub-computer; therefore, this product must be used with the required items listed below.
- Use of inapplicable components will void product warranty. Using inapplicable components may cause serious damage to the engine.

Required Items for HKS GT Supercharger System Complete Kit

ECU	OEM with most recent factory flash
Exhaust Manifold with Catalytic Converter	HKS Metal Catalyzer (Factory CAT must be modified as well.)
Mid-Pipe w/ Secondary Catalytic Converter	OEM
Exhaust System	OEM
Spark Plug	HKS Super Fire Racing M40iL or M45iL.
Engine Oil	HKS Engine Oil Series (Viscosity must be 40W or higher.)

- HKS will not be responsible for any damage caused if the following condition is neglected.

Conditions of Use

For safety precautions and product warranty liabilities, the impeller's maximum RPM should not exceed 100,000 rpm, the engine RPM should not exceed the specified range.

○Required Parts Modification

Parts Description	Modification	Material	Remarks
Bumper Reinforcement Installation Bracket	Partial removal	Aluminum	
Bumper Reinforcement	Drilling a 9.1mm pilot hole and installing a blind nut.	Aluminum	
ECU Box Cover	Partial removal	PP Resin	
Inner Fender (Left & Right)	Partial removal	PP Resin	

○Required Tool

Tool	Remarks
Nut Fastener (M6)	POP NUT Fastener (MN10A-S/L) is recommended.

○Additional Required Items

Description	Remarks
Long Life Coolant	Approximately 5 liters
Exhaust Gaskets	Toyota OEM <ul style="list-style-type: none">▪ 17173-38030 Exhaust Manifold Head Gasket (2 pcs.)▪ 90917-06078 Exhaust Pipe Gasket No.2 (2 pcs.)▪ 90917-06057 Exhaust Pipe Gasket (2 pcs.)
Air Cleaner (Recommended)	Toyota OEM cleaner must be used. It is recommended to replace with new cleaners before installing this kit. <ul style="list-style-type: none">▪ 17801-38010-79 (1 pc)

INTRODUCTION

- Read this manual prior to installation.
- Installation must be done by a professional.
- After installation, follow the instructions for safe use.
- Refer to the factory service manual as well as this manual when removing factory parts during removal and installation.

ATTENTION

- This manual indicates items you need to pay attention to in order to install this product safely and lists precautions to avoid any possible damage and/or accidents.
- This product is an automobile part. Do not use for any other purposes.
- HKS will not be responsible for any damage caused by incorrect installation and/or use, or use after modification and/or dismantling of this product.
- This product was designed for installation on a specific JDM factory vehicle.
- The specifications of this product are subject to change without notice.
- The instructions are subject to change without notice. Make sure to refer to the most recent instructions.

PARTS LIST

No.1

No.	Part Number	Description	QT	Remarks
A 01	G18600-T63010-00	GTS8550	1	
A 02	G17619-K00010-00	S/C Gasket	2	
A 03	G90191-061201-BB	Low Head Cap Bolt M6 L=12	5	
A 04	12999-AK003	S/C Pulley	1	φ90
A 05	G15711-K00050-00	Fluid Cooler Core	1	
A 06	G15300-K00040-00	Fluid Tank	1	
A 07	G08834-K00030-00	Traction Fluid	1	
A 08	G17714-K00030-00	Bracket	2	No use for LS460
A 09	G09113-K00040-15	Silicone Hose 70mm×L20	2	
A 10	90121-004100	Hose Clamp #48	2	
A 11	G09110-H15010-00	Hose Assembly 10mm	1	Filter assembled
A 12	G09110-N53020-00	Hose Assembly 8mm	1	L=3000
A 13	G09122-K00070-00	Hose Clamp 10mm	3	
A 14	90122-002100	Hose Clamp 8mm	4	
A 15	G17921-T63010-00	Intercooler Bracket No.1	1	
A 16	G17921-T63020-00	Intercooler Bracket No.2	1	
A 17	G17921-T63030-00	Intercooler Bracket No.3	1	
A 18	G90291-062102-BB	Blind Nut M6	4	
A 19	G17951-T63010-00	Inlet Pipe No.1	1	
A 20	G17951-T63020-00	Inlet Pipe No.2	1	
A 21	G17951-T63030-00	Inlet Pipe No.3	1	
A 22	G17971-T63010-00	Outlet Pipe No.1	1	
A 23	G17971-T63020-00	Outlet Pipe No.2	1	
A 24	G17971-T63030-00	Outlet Pipe No.3	1	
A 25	G17971-T63040-00	Outlet Pipe No.4	1	
A 26	G17811-T63010-00	Suction Pipe	1	
A 27	G17621-T63010-00	S/C Bracket No.1	1	
B 01	G89584-T43010-00	Steering ECU Bracket No.1	1	
B 02	G89584-T43020-00	Steering ECU Bracket No.2	1	
B 03	G17961-T63010-00	Pipe Bracket No.1	1	
B 04	G17921-T57030-00	Ground Adapter	1	
B 05	G09971-T63010-00	Spacer D=20 d=6 t=10	1	
B 06	G09113-K00090-15	Silicone Hose (Purple) 50mm L=20	1	
B 07	G09113-T63030-00	Silicone Hose (Purple) 65mm L=20	4	
B 08	G09113-K00070-15	Silicone Hose (Purple) 35mm L=55	4	
B 09	90400-097100	Silicone Hose (Purple) 60-65mm L=70	1	
B 10	90400-104100	Silicone Hose (Purple) 70mm L=55	1	

No.	Part Number	Description	QT	Remarks
B 11	90400-066100	Silicone Hose (Purple) 80mm L=70	2	
B 12	90400-069100	Silicone Hose (Purple) 70-80mm L=60	1	
B 13	94501-157100	Spacer D=20 d=10 t=5	9	
B 14	94601-005372	Washer M4	5	
B 15	G17737-T63010-00	Insulator Rubber	4	
B 16	G17738-T63010-00	Retainer	4	
B 17	94611-061816	Large-diameter Washer M6	10	
B 18	G90214-102101-CB	Nut Plate M10	1	
B 19	G90111-086001-CB	Hexagon Bolt M8 L=60	1	
B 20	G90121-041501-8B	Cap Bolt M4 L=15	5	
B 21	G90121-061501-BA	Cap Bolt M6 L=15	10	
B 22	G90121-062001-BA	Cap Bolt M6 L=20	2	
B 23	G90121-062501-BB	Cap Bolt M6 L=25	11	
B 24	G90121-063001-BB	Cap Bolt M6 L=30	2	
B 25	G90121-081501-CB	Cap Bolt M8 L=15	2	
B 26	G90121-082001-CB	Cap Bolt M8 L=20	2	
B 27	G90121-082501-CB	Cap Bolt M8 L=25	10	
B 28	G90121-083002-CB	Cap Bolt M8 L=30	2	
B 29	G90121-084001-CB	Cap Bolt M8 L=40	2	
B 30	G90121-086001-CB	Cap Bolt M8 L=60	2	
B 31	G90121-086501-CB	Cap Bolt M8 L=65	1	
B 32	G90121-102001-DB	Cap Bolt M10 P1.5 L=20	1	
B 33	G90121-103501-CB	Cap Bolt M10 P1.25 L=35	1	
B 34	G90121-103501-DB	Cap Bolt M10 P1.5 L=35	1	
B 35	G90121-104501-CB	Cap Bolt M10 P1.25 L=45	1	
B 36	G90121-105501-CB	Cap Bolt M10 P1.25 L=55	1	
B 37	G90121-106501-CB	Cap Bolt M10 P1.25 L=65	3	
B 38	G90121-107001-CB	Cap Bolt M10 P1.25 L=70	1	
B 39	G90121-109501-CB	Cap Bolt M10 P1.25 L=95	1	
B 40	G90126-083001-CB	Flat Head Bolt M8 L=30	2	
B 41	G90136-061501-BA	Button Head Bolt M6 L=15	3	
B 42	G90136-082001-CB	Button Head Bolt M8 L=20	2	
B 43	G90191-084001-CB	Low Head Cap Bolt M8 L=40	1	
B 44	G90221-062101-BA	Flange Nut M6	10	
B 45	G90221-082101-CB	Flange Nut M8	1	
B 46	G90221-102101-CA	Flange Nut M10	5	
B 47	G90311-062103-0A	Washer M6	20	
B 48	G90311-082101-0A	Washer M8	25	

No.	Part Number	Description	QT	Remarks
B 49	G90311-102102-0A	Washer M10	10	
B 50	G89610-T43011-00	F-CON iS x2 +OSC SET(FOR 1UR)	1	
B 51	G82111-T43011-00	F-CON Harness (F-CON Side)	1	
B 52	G82111-T43021-00	F-CON Harness (ECU Side)	1	
B 53	4299-RA015	Pressure Sensor Harness	1	
B 54	4299-RA008	Pressure Sensor	1	
B 55	G89620-K00080-00	INJ Adaptor	2	
B 56	G90221-062101-BA	Flange Nut M6	1	
B 57	90461-036100	Hose 4mm	1	L=2000
B 58	90413-005100	T-fitting 8-4-8mm	1	
B 59	90418-001100	T-fitting 4-4-4mm	1	
B 60	4599-RA017	Air Filter 4mm	1	
B 61	G09925-T63010-00	One Way Valve	1	
B 62	G82171-T43010-00	Airflow Extension Harness	2	
B 63	G89921-T43010-00	6-pin Connector	2	
B 64	G17673-T63010-00	Blow-off Pipe No.1	1	
B 65	G17673-T63020-00	Blow-off Pipe No.2	1	
B 66	G13572-T63010-00	Belt 7PK1030	1	
B 67	G13572-T63020-00	Belt 6PK2135	1	
C 01	G13564-T57010-00	Pulley Cover	2	
C 02	G09971-T63020-00	Spacer D= 20 d=10 t= 16.5	1	
C 03	G09971-T63040-00	Spacer D= 20 d= 8 t= 14.5	3	
C 04	G09971-T63060-00	Spacer D= 15 d= 6 t= 3	1	
C 05	G09971-T57020-00	Spacer D= 20 d= 10 t= 10.5	1	
C 06	G09122-K00040-00	Hose Clamp 16mm	2	
C 07	90403-004100	Joint Pipe 12mm	1	
C 08	90413-012100	Joint Pipe 12-16-12mm	1	
C 09	G17814-N53010-00	Hose 16mm (L=150)	1	
C 10	G13561-T57010-00	Idler Pulley 70mm	2	
C 11	G16317-T63010-00	Water Inlet Adapter	1	
C 12	G16315-T63010-00	O-Ring	2	
C 13	G09113-T63010-00	Hose 16mm (L=500)	1	
C 14	90403-003100	Joint Pipe 8mm	1	
C 15	90122-002100	Hose Clamp 8mm	2	
C 16	G09325-K00010-00	Thermo Sheet (100×100)	1	
C 17	G09113-T63020-00	Mesh 16mm (L=700)	1	
C 18	G17661-T63010-00	Blow-off Valve	1	

No.4

No.	Part Number	Description	QT	Remarks
C 19	G13560-G15010-00	Idler Pulley 60mm	2	
C 20	G13560-K00020-00	Idler Pulley 85mm	1	
C 21	G09971-T63030-00	Spacer D= 20 d= 10 t= 14	1	
C 22	G09971-T63050-00	Spacer D= 20 d= 8 t= 3	2	
C 23	G09971-T63100-00	Spacer D= 20 d= 8 t= 7	1	
C 24	G09971-T63120-00	Spacer D= 20 d= 10 t= 7	1	
C 25	G09971-T63140-00	Spacer D= 20 d= 10 t= 4.5	1	
C 26	G09971-T63090-00	Spacer D= 20 d= 10 t= 6	3	
C 27	90461-005100	Hose 6mm L=500mm	1	
C 28	90122-003100	Hose Clamp 6mm	2	
C 29	90403-014100	Joint Pipe 6-4mm	1	
C 30	G09971-T63150-00	Spacer D= 20 d= 10 t= 7.5	1	
D 01	G17621-T63022-00	S/C Bracket No.2	1	
D 02	G13555-T63010-00	Tensioner Pulley Bracket	1	
D 03	G13565-T63011-00	Idler Pulley Bracket No.1	1	
D 04	G13565-T63020-00	Idler Pulley Bracket No.2	1	
D 05	G15341-T63010-00	Oil Tank Bracket	1	
D 06	G17993-T63010-00	Pipe Bracket (Hole Dia. 12mm)	3	
D 07	G17714-K00020-00	Pipe Bracket (Hole Dia. 7mm)	1	
D 08	G11453-T63010-00	Level Gauge Bracket	1	
D 09	G13564-T63010-00	Drive Pulley Bracket	1	
D 10	G16293-T63010-00	Water Bypass Joint	1	
D 11	G16255-T63010-00	Water Outlet Gasket	2	
D 12	90400-078100	Silicone Hose (Purple) 65mm L=70	6	
D 13	90121-001100	Hose Clamp #36	1	
D 14	90121-003100	Hose Clamp #40	15	
D 15	90121-004100	Hose Clamp #48	3	
D 16	90121-006100	Hose Clamp #56	1	
D 17	90121-022100	Hose Clamp #44	5	
D 18	90121-037100	Hose Clamp #20	8	
D 19	90131-006100	Tie Wrap S L=100	50	
D 20	90131-007100	Tie Wrap M L=150	50	
D 31	G09919-K00010-18	Tie Wrap L L=250	30	
D 32	G13561-T63020-00	Drive Pulley	1	
D 33	G13563-T63020-00	Drive Pulley Shaft Assembly	1	
D 34	G09971-K00220-00	Spacer D= 20 d= 8 t= 37.2	1	
D 35	G09971-K00230-00	Spacer D= 20 d= 10 t= 39.5	1	

No.	Part Number	Description	QT	Remarks
D 36	G09971-K00240-00	Hexagon Spacer B= 17 M 10 t= 46.5	1	
E 01	G99551-005005-00	Corrugated Tube 5mm L=2000	1	
E 02	G99551-007006-00	Corrugated Tube 7mm L=3000	1	
E 03	G99551-010002-00	Corrugated Tube 10mm L=3000	1	
E 04	G99551-013004-00	Corrugated Tube 13mm L=250	1	
E 05	G99551-015006-00	Corrugated Tube 15mm L=4000	1	
E 06	G99551-022006-00	Corrugated Tube 22mm L=250	1	
E 07	E04215-T63010-00	Installation Manual	1	
E 08	E04215-T63020-00	Instruction Manual	1	
E 09	E04215-N53140-00	Instruction Manual	1	
E 10	G17910-T63010-00	Intercooler	1	
F 01	G17751-T63020-00	Air Cleaner Duct	1	
F 02	G17721-T63020-00	Lower Air Cleaner Box	1	
F 03	G17722-T63020-00	Upper Air Cleaner Box	1	
F 04	G11291-T63050-00	Engine Cover	1	
F 05	G09971-T63130-00	Spacer D= 10 d= 4 t= 5	4	
F 06	G11293-T63010-00	Engine Cover Bracket	1	
F 07	15719-030261	Airtight Tape L=300mm	5	
F 08	15719-037100	Sponge Sheet 50×50×3	5	
F 09	G11291-T63060-00	Engine Side Cover (Front)	1	
F 10	G11291-T63070-00	Engine Side Cover (Left)	1	
F 11	G11291-T63080-00	Engine Side Cover (Right)	1	
	G65460-T43010-00	Metal Catalyzer (Left)	1	Not included
	G65460-T43020-00	Metal Catalyzer (Right)	1	Not included

※ If any spare part is necessary to replace, contact your dealer.

※ Bolts, nuts, and washers included in this kit are more than required to install this kit.
Keep those extras as spare parts.

Main Parts (1)



A01: GTS8550



A02: S/C Gasket



A04: S/C Pulley



A05: Fluid Cooler Core



A06: Fluid Tank



A07: Traction Fluid



A11: Hose Assy 10mm



A15: I/C Bracket No.1



A16: I/C Bracket No.2



A17: I/C Bracket No.3



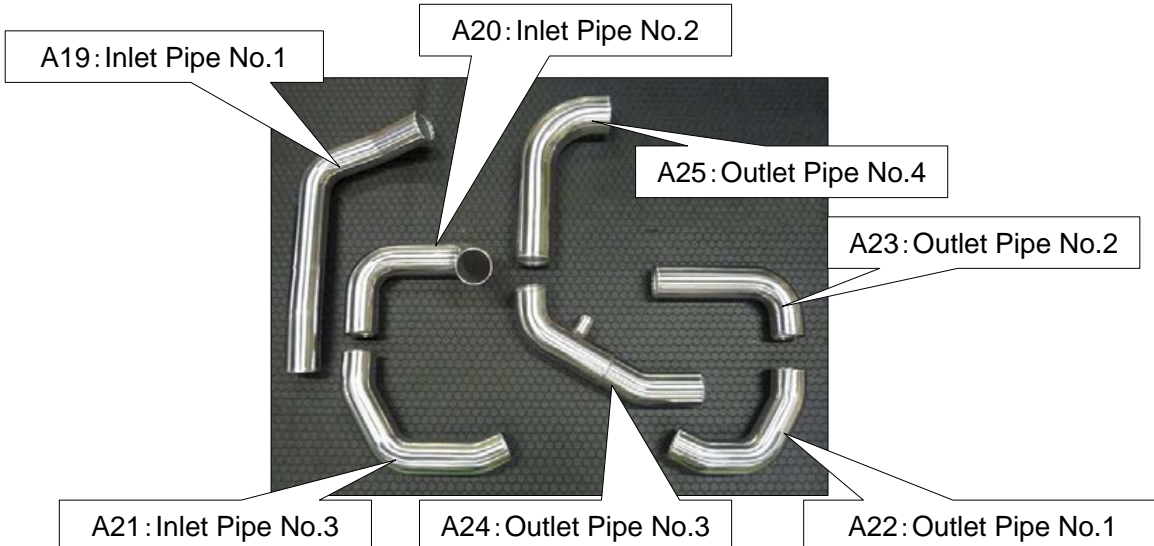
A18: Blind Nut M6



A26: Suction Pipe



A27: S/C Bracket No.1



Main Parts (2)



B01: Steering ECU Bracket No.1



B02: Steering ECU Bracket No.2



B03: Pipe Bracket



B04: Ground Adapter



B15: Insulator Rubber B16: Retainer



B18: Nut Plate M10



B50: F-CON iS x2 + OSC SET (FOR 1UR)



B51: F-CON Harness (F-CON Side)



B52: F-CON Harness (ECU Side)



B53: Press. Sensor Harness



B54: Press. Sensor



B55: INJ Adapter



B61: One way Valve



B62: Airflow Ex. Harness



B63: 6-pin Connector



B64: Blow-off Pipe No.1



B65: Blow-off Pipe No.2

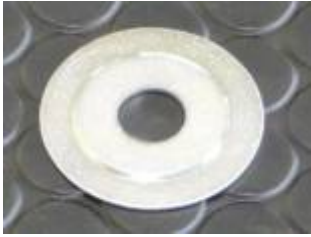


B66: Belt 7PK1030



B67: Belt 6PK2135

Main Parts (3)



C01 : Pulley Cover



C10: Idler Pulley φ70

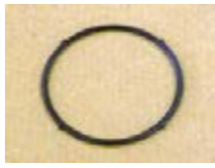


C20: Idler Pulley φ85

C19: Idler Pulley φ60



C11: Water Inlet Adapter



C12: O-Ring



C17: 16mm Mesh



C18: Blow-off Valve



D01 : S/C Bracket No.2



D02: Tensioner Bracket



D03: Idler Pulley Bracket No.1



D04: Idler Pulley Bracket No.2



D05: Oil Tank Bracket



D06: Pipe Bracket (Hole Dia.φ12)



D07: Pipe Bracket (Hole Dia. φ7)



D08: Level Gauge Bracket



D09: Drive Pulley Bracket



D10: Water Bypass Joint



D11: Water Outlet Gasket



D32: Drive Pulley



D33: Drive Pulley Shaft Assy Bearing

Main Parts (4)



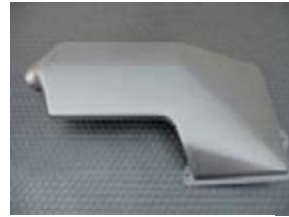
E10: Intercooler



F01: Air Cleaner Duct



F02: Lower Air Cleaner Box



F03: Upper Air Cleaner Box



F04: Engine Cover



F09: Engine Front Side Cover



F10: Engine Left Side Cover

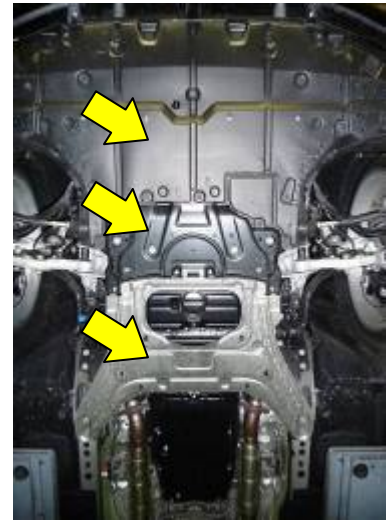


F11: Engine Right Side Cover

1. REMOVAL OF FACTORY PARTS

Refer to this instruction manual and the factory service manual to remove the factory parts.

- Leave the vehicle at least for 6 minutes after ignition is off to save a memory and setting of the HDD navigator.
- Remove the under covers (3 pieces).



- Remove the engine side covers and engine cover.



- Remove two mounting rubbers in the back of the engine side covers. (Keep the removed rubbers for later use.)

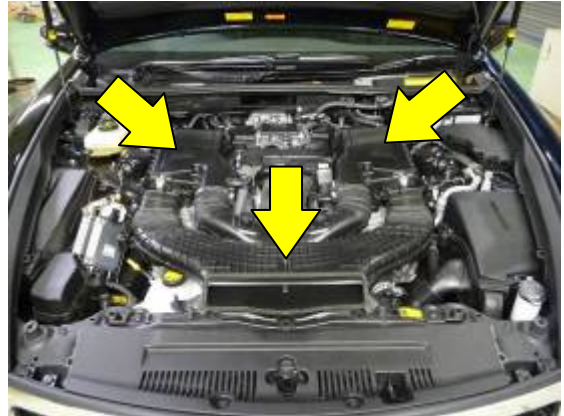


- Remove 6 clips and then remove the cowl top ventilator louver LH.



- Disconnect the cables from the battery.
- Remove the battery.

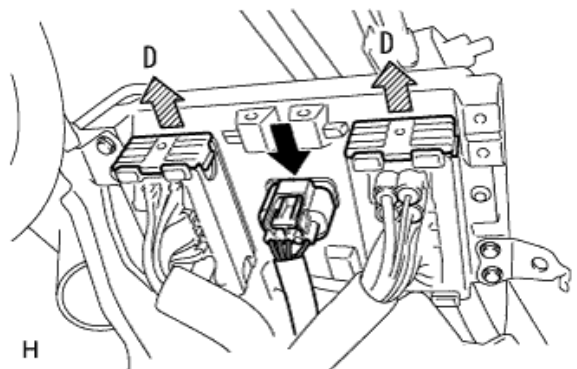
- Remove the air cleaner box and air duct.



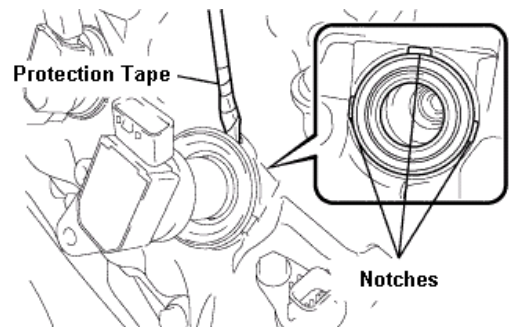
- Remove the mounting bolts of both sides' the air cleaner box. Keep the removed bolts for later use.
- Remove two stud bolts from the left bank.



- Remove the skid control computer assembly.



- Replace the spark plugs with new ones. Spark plugs are not included in this kit.
- ※ When replacing the plugs for the 1st, 2nd, 3rd, and 4th cylinder, insert a flat head screwdriver into a notch, and remove the spark plug tube gasket and ignition coil together. Wrap a protection tape around the screwdriver as shown in the diagram on the right.
- ※ Make sure not to scratch the cylinder head when removing the spark plug tube gasket.



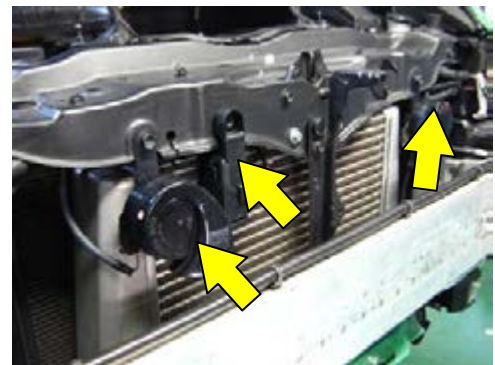
- Reinstall the skid control computer assembly.
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- Remove the front bumper.
 - ※ Make sure to remove the bracket from the fog lamp.
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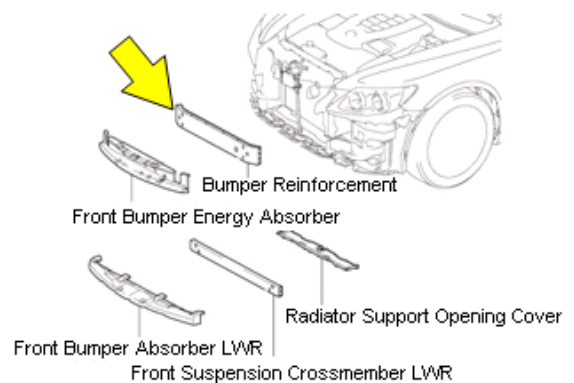
- Remove the left and right sides of the brake ducts.



- Remove the left and right horns and smog sensor.



- Remove the bumper reinforcement.



- Drain coolant.
- Remove the radiator reservoir tank.

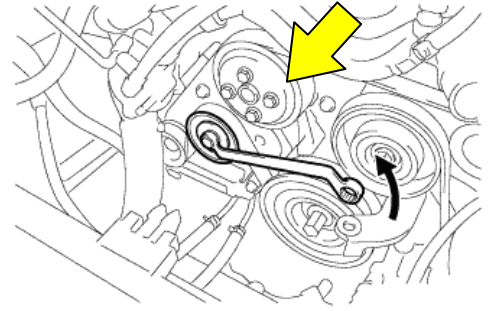
NOTE

Take extra care when removing the 10mm fitting used in vehicles manufactured earlier than August 2010 since it is thin and easy to be broken.

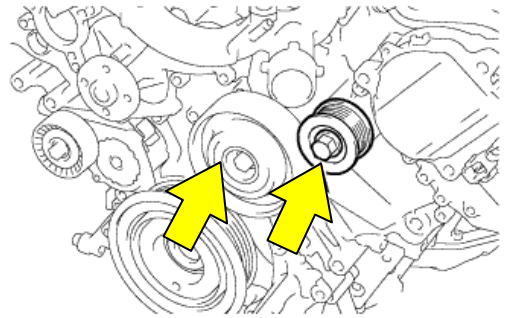
- Disconnect the upper and lower radiator hoses.



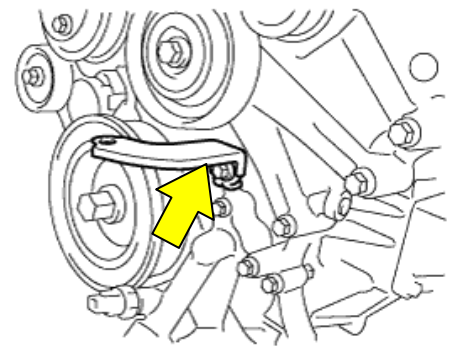
- Loosen 4 bolts of the water pump pulley leaving the belt installed.
- Loosen the auto tensioner and then remove the belt.
- Remove the water pump pulley.



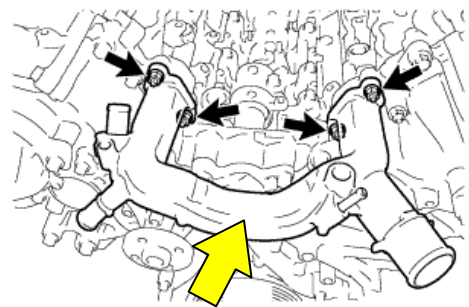
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- Remove 2 idler pulleys.



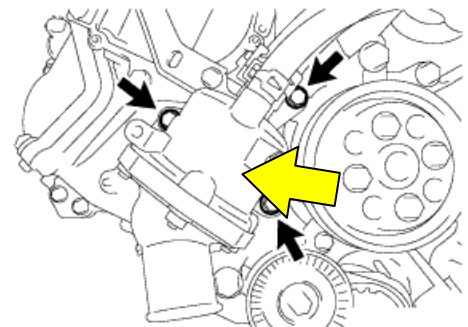
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- Remove the resonator bracket.



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- Remove the front water bypass joint and 2 water outlet gaskets.

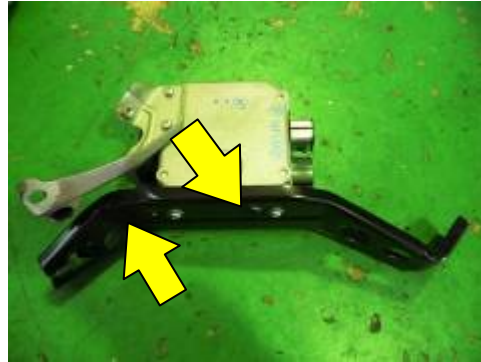


-
- Remove the water inlet housing and gasket.

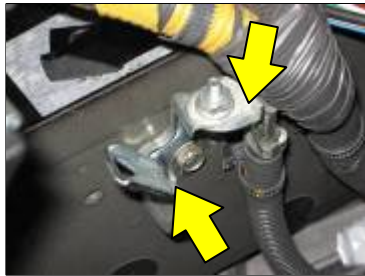


2. RELOCATION, MODIFICATION, & CHANGE OF FACTORY PARTS

- Remove the power steering computer (P/S computer) and installation bracket together.
- Remove the installation bracket from the P/S computer.



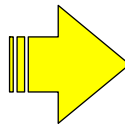
- Remove the alternator ground and bracket.



- Change the engine harness layout (right front bank.)



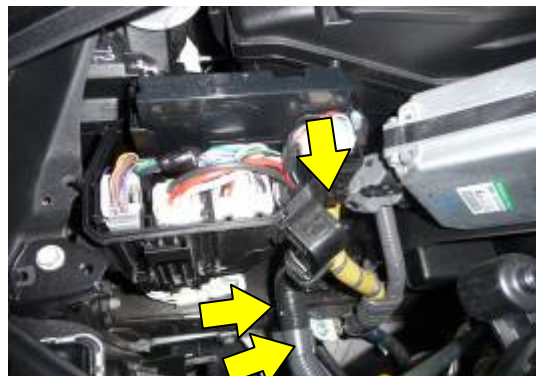
Before Change



After Change

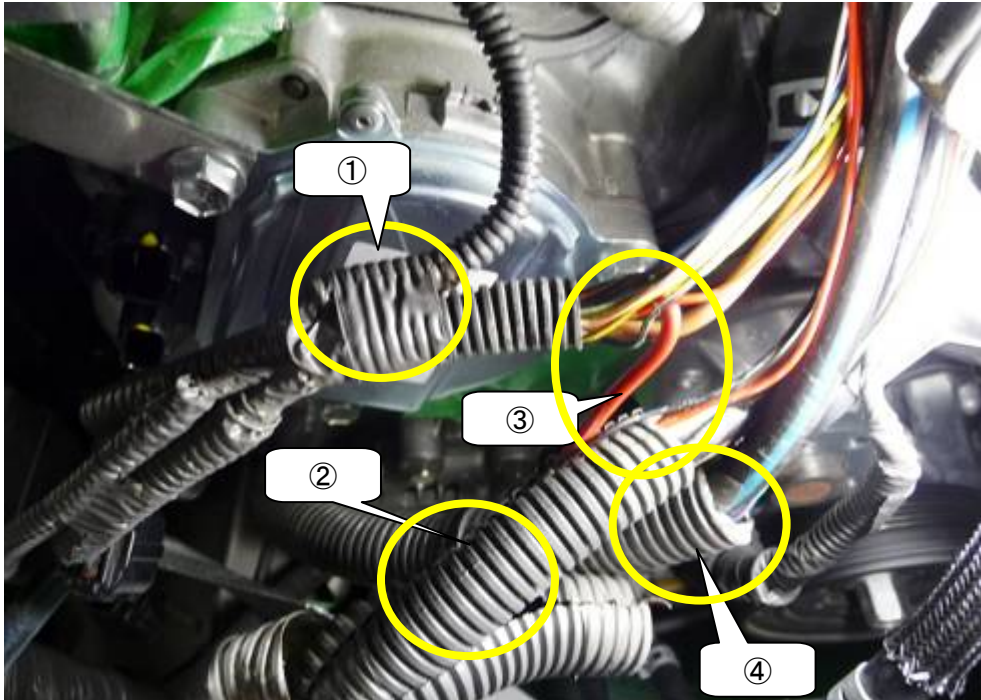


Remove the corrugated tube of the engine harness circled in the diagram above.

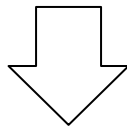


Remove the harness clamp, harness cover, and corrugated tube.

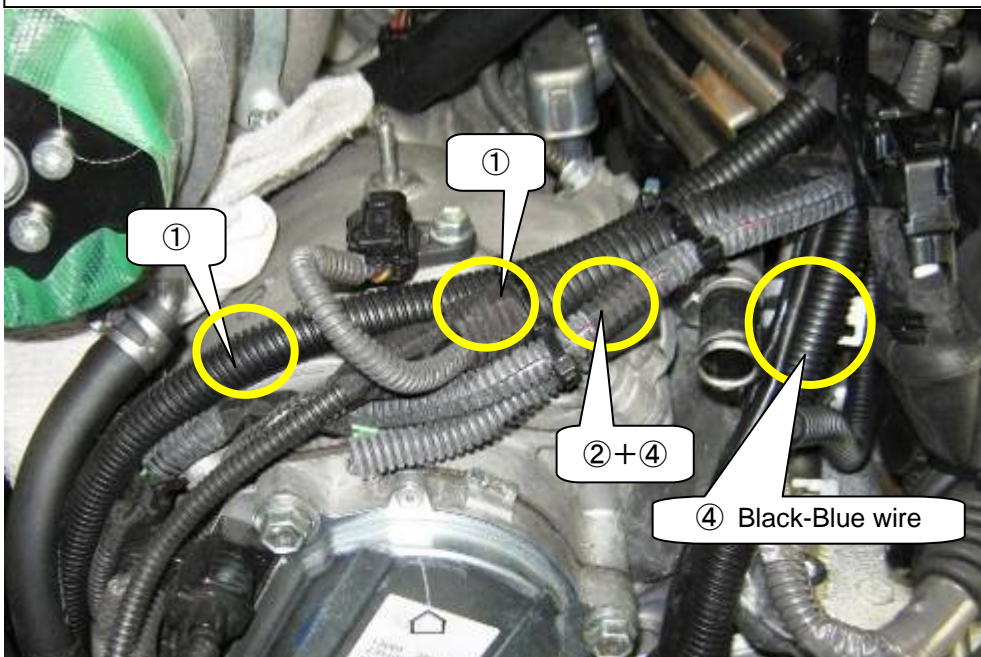
• Corrugated Tube 5mm / 7mm / 10mm / 13mm



- Remove red wire ③ from the bundle ① and ②.
- Re-bundle the ① to two bundles, and route them over the cylinder head.
- Bundle wires except the black-blue wire and wire covered with black tube using the provided 7mm corrugated tube, and route it over the cylinder head.
- Re-bundle the black-blue wire and wire covered with black tube from ④ with the bundle ②, and route it under the VTC unit.



After Modification

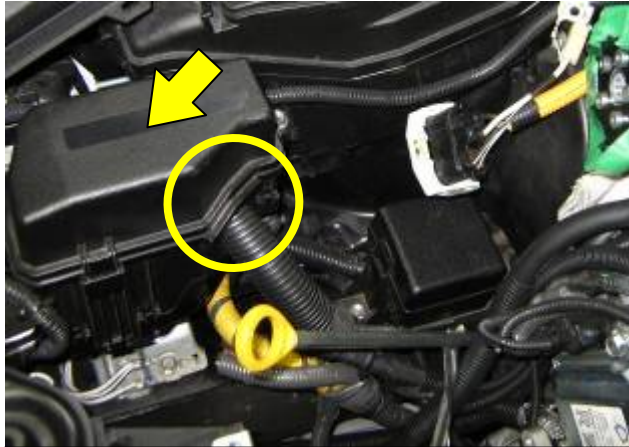


• Corrugated Tube 5mm / 7mm / 10mm / 13mm

- Thermo Sheet (100 × 100)
- Tie Wrap (S)
- Corrugated Tube 22mm



Lay the harnesses side-by-side, and secure and cover them with the provided Thermo Sheet like a flat cable so they can be inserted between the VTC unit and Water Inlet Adapter.



Cover the harness inside the relay block cover with the corrugated tube 22mm. Reinstall the relay block cover.



After Modification - 1



After Modification - 2

○ Reinstall the power steering computer.



- P/S Computer Bracket No.1
- P/S Computer Bracket No.2
- Ground Adapter
- Spacer D=20 d=6 t=10
- Cap Bolt M6 L=15 (3 pcs.)
- Cap Bolt M6 L=30
- Washer M6 (4 pcs.)
- Large-dia. Washer M6



• Pipe Bracket No.1



Install the Bracket. Reuse the factory bolts.



Install the Bracket to the screw hole circled above.

- Cap Bolt M6 L=15
- Washer M6



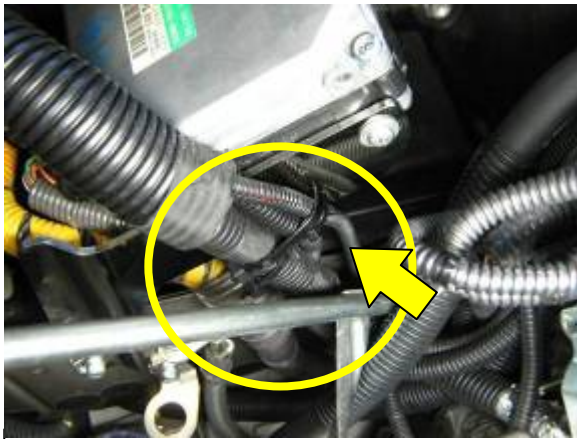
Temporarily install the bracket & spacer as shown above.



- Install the P/S computer connector.
- Route the P/S computer harness between the bracket and vehicle body.
- Reuse the factory bolts to install the side of the P/S computer.
- Relocate the ground to the steering ECU bracket using the Cap Bolt M6 L=15, Washer M6, and Flange Nut M6



Remove the bracket of the alternator ground. Secure the bracket to these screw holes.



Secure the harnesses from the relay box to the bracket with Tie Wrap.



Install the P/S computer harness ground using Cap Bolts M6 L=15 x 2, Washers M6 x 2, and Flange Nut M6.

- ※ Place the ground in the direction shown in the diagram above to prevent the ground tip from unnecessary contact with the vehicle body.
- ※ Make sure there is no excessive tension on the ECT harness. Remove the harness clamp to release tension if necessary.

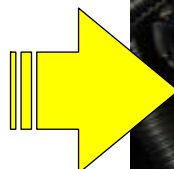
○ Install the Water Inlet Adapter.



- Water Inlet Adapter
- O-Ring
- Factory Bolt M8 x 3



Install the O-ring.



Insert the harness between the VTC unit and Adapter using the 3 factory M8 bolts.

Tightening Torque N·m (kgf·m)

T=21(2.14)

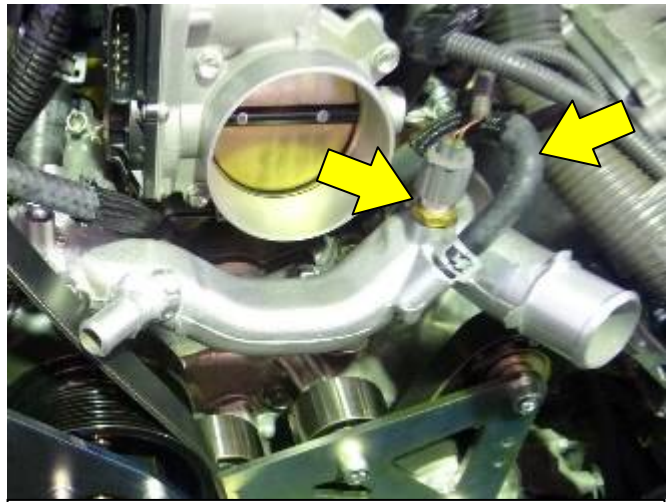
- Install the Water Bypass Joint.



•Water Bypass Joint



•Water Outlet Gasket
(2 pcs.)
•Factory Nut M8
(4 pcs.)



Tightening Torque N·m (kgf·m)

- Nut M8: T=21(2.14)
- Water Temperature Sensor: T=21(2.14)

- Install the water temperature sensor.
- Install the 8mm heater hose.

- Remove the bearing and holder from the drive pulley shaft assembly.



•Drive Pulley Shaft Assembly



- Place the Drive Pulley and Drive Pulley Shaft over the Water Pump Pulley, and install them.



•Drive Pulley
•Cap Bolt M8 L=25 (4 pcs.)
•Washer M8 (4 pcs.)

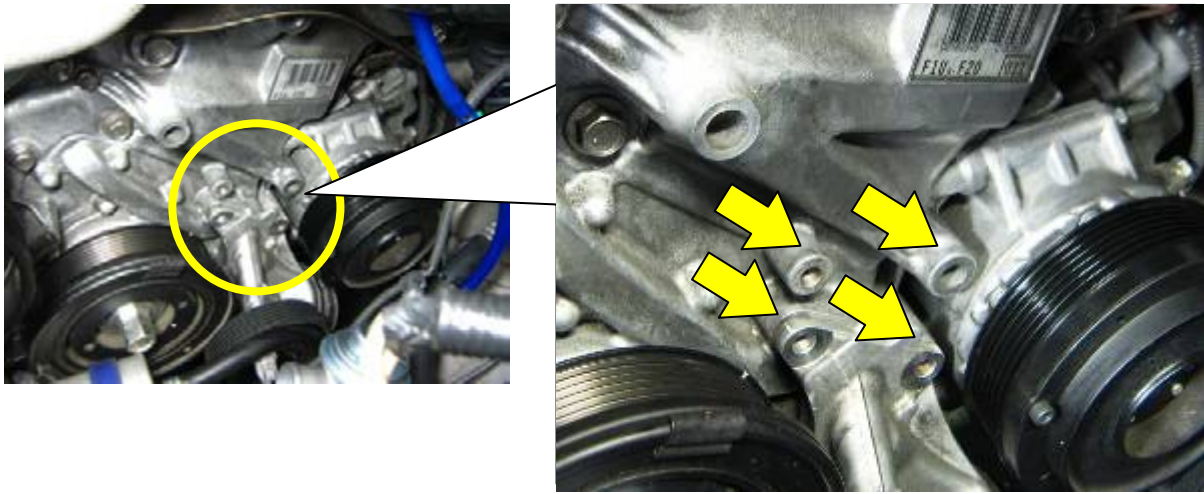


Tightening Torque N·m (kgf·m)

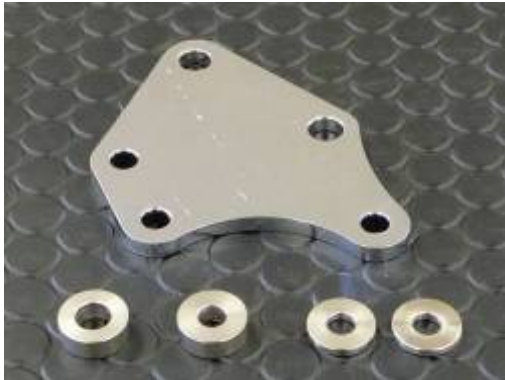
T=21(2.14)

3. INSTALLATION OF IDLER PULLEY BRACKET

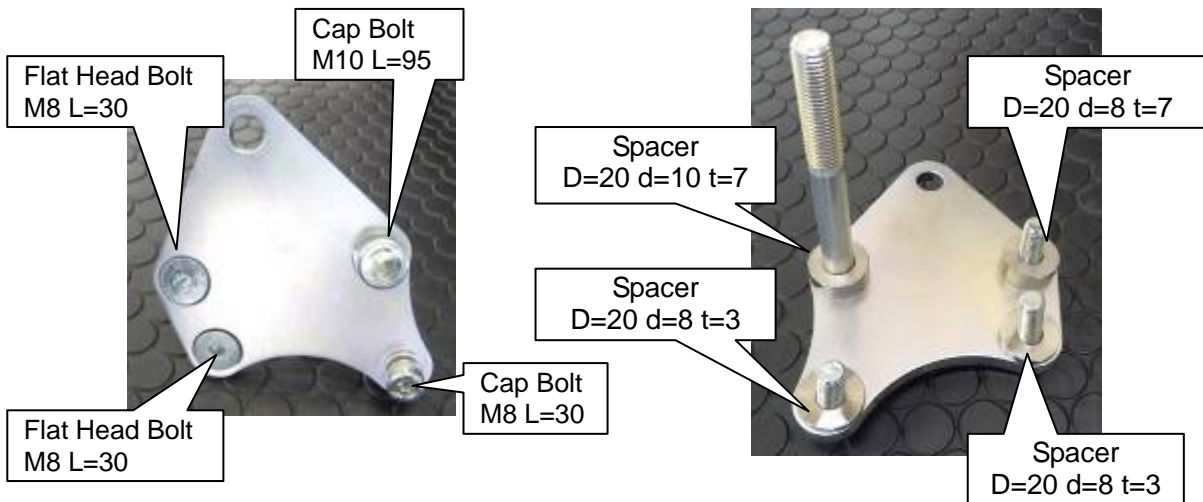
- Remove 4 bolts as shown in the diagram below.



- Temporarily install the Spacer to Idler Pulley Bracket No.2.



- Idler Pulley Bracket No.2
- Spacer D=20 d=8 t=3 (2 pcs.)
- Spacer D=20 d=8 t=7
- Spacer D=20 d=10 t=7
- Flat Head Bolt M8 L=30 (2 pcs.)
- Cap Bolt M8 L=30
- Cap Bolt M10 L=95
- Washer M8
- Washer M10



- Install Idler Pulley Bracket No.2.

Tightening Torque N·m (kgf·m)

M8 Bolt T=21(2.14)

M10 Bolt T=47(4.79)

- Temporarily install the belt 6PK2135 as shown in the diagram on the right.



•Belt 6PK2135



- Fill the space circled in the diagram on the right with cloth or paper to prevent a nut from falling into this gap when installing a pulley later.



- Install the Idler Bearing to Idler Pulley Bracket No.1.



- Idler Pulley Bracket No.1
- Idler Pulley $\phi 60$
- Hexagon Spacer B=17 M10 L=46.5
- Spacer D=20 d=10 t=6
- Cap Bolt M10 P=1.5 L=35
- Washer M10



Tightening Torque N·m (kgf·m)
M10 Bolt T=47(4.79)

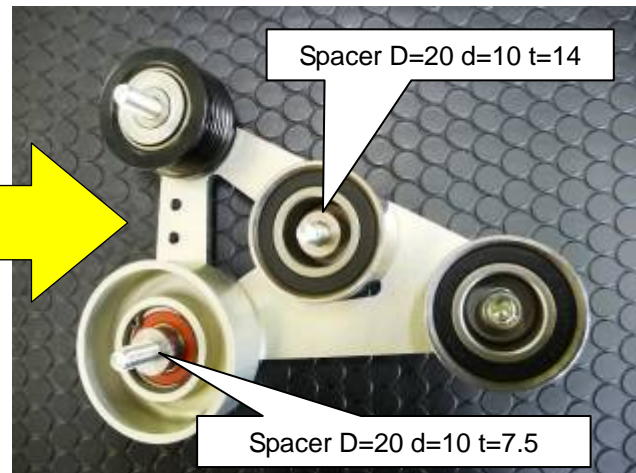
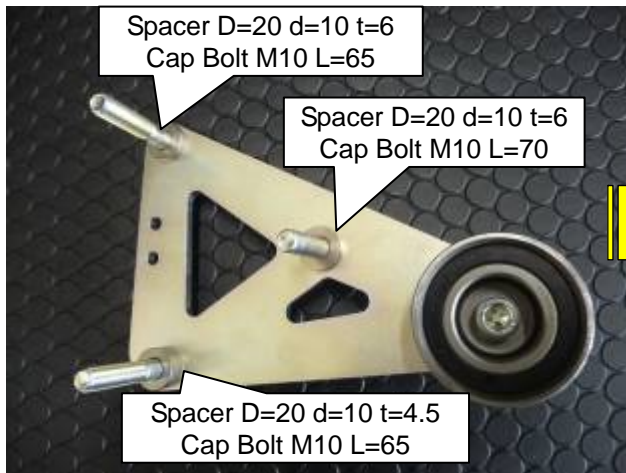


Spacer D=20 d=10 t=6

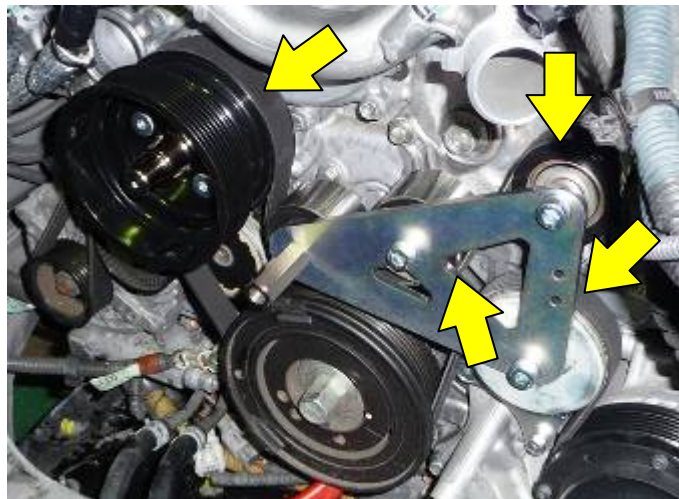
- Temporarily install the Idler Pulley to Idler Pulley Bracket No.1.



- Idler Pulley 85mm
- Idler Pulley 60mm
- Spacer D=20 d=10 t=4.5
- Spacer D=20 d=10 t=7.5
- Spacer D=20 d=10 t=6 (2 pcs.)
- Spacer D=20 d=10 t=14
- Cap Bolt M10 P=1.25 L=65 (2 pcs.)
- Cap Bolt M10 P=1.25 L=70
- Washer M10 (3 pcs.)
- Flange Nut M10



- Place a belt on the pulleys, and install them to the engine.
※Do not apply tension to the belt, yet.
- Remove cloth or paper from the space specified on page 22.

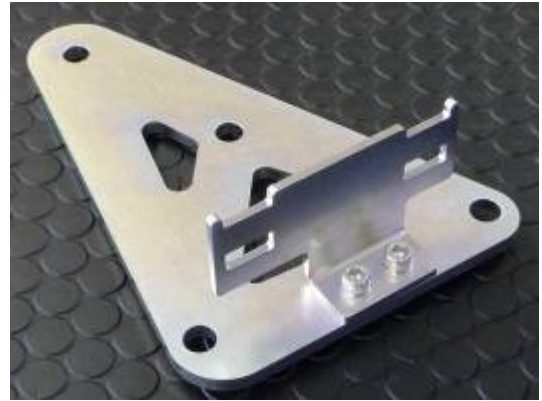


- Flange Nut M10
- Tightening Torque N·m (kgf·m)
- M10 Bolt · Nut T=43(4.39)

○ Install the Oil Tank Bracket to Idler Pulley Bracket No.1.



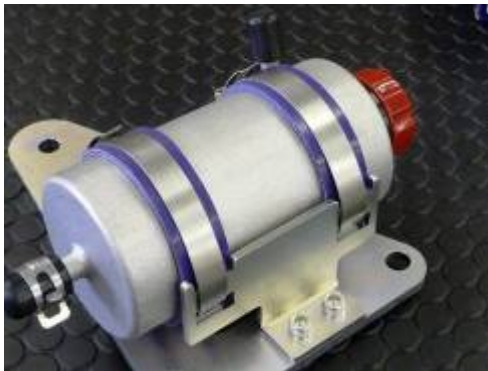
- Oil Tank Bracket
- Cap Bolt M6 L=20 (2 pcs.)
- Washer M6 (2 pcs.)
- Flange Nut M6 (2 pcs.)



○ Install the Fluid Tank.



- Fluid Tank
- Silicone Hose 70mm L=20 (2 pcs.)
- Hose Clamp #48 (2 pcs.)

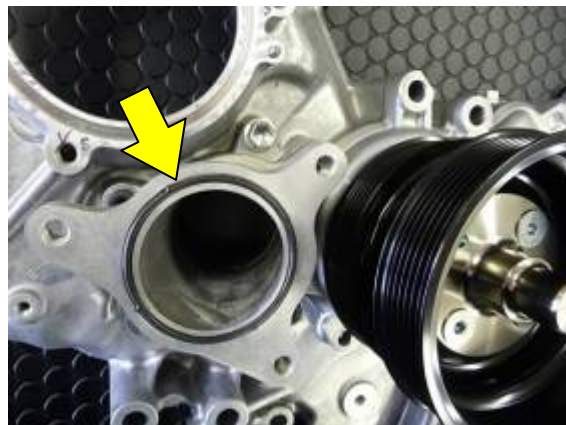
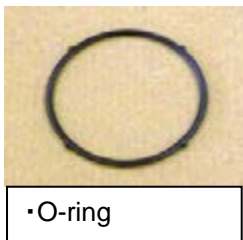


Install the 8mm fitting facing to the vehicle's front.

4. INSTALLATION OF WATER INLET HOUSING



- Install the O-ring.



- Install the Water Inlet Housing.

- Cap Bolt M8 L=20
- Button Bolt M8 L=20 (2 pcs.)
- Washer M8



Button Bolt M8 L=20
※No washer is required.

Cap Bolt M8 L=20

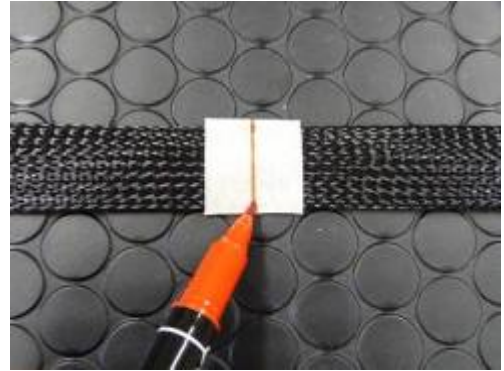
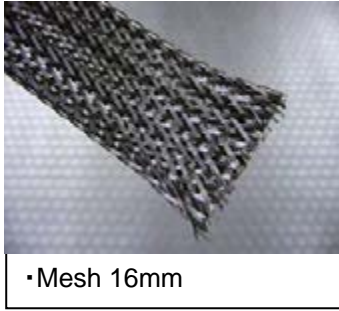
Install the Button Bolt M8 L=20 to the place of the bolt not shown in this diagram. Tighten the bolt to the specified tightening torque, and then remove it.

Tightening Torque N·m (kgf·m)
M8 Bolt T=21(2.14)

- Cut the provided 16mm Hose to 265mm and 175mm in length.

- Hose 16mm (L=500mm)

- Cut the provided Mesh 16mm to 330mm and 210mm in length.



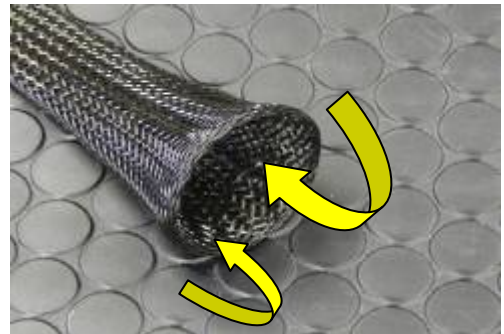
- Cover the cut portion with masking tape to prevent ravel as shown in the diagram on the right.
- Lightly apply tension to the mesh and mark the position to cut to 330mm and 210mm in length.
- Cut the hose to 330mm and 210mm in length.

- Cover a hose with the provided Mesh, and secure it with Tie Wraps.

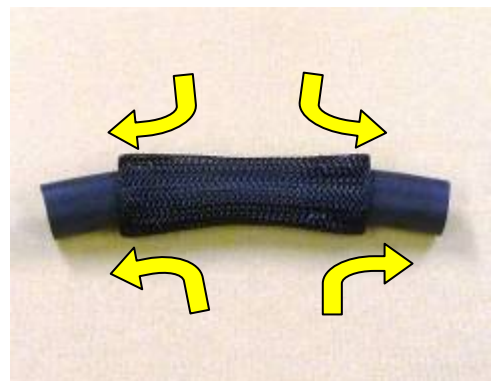
- Pinch the one end of the Mesh, push the end inward, and interfold the end of the Mesh as shown in the diagrams below.



- Repeat the same procedure to the other end.



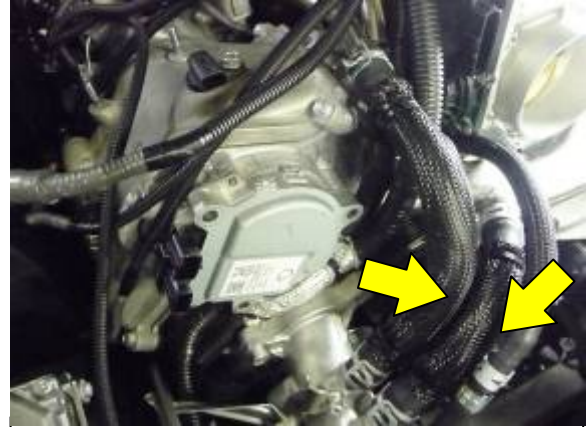
- Push and shrink the Mesh in a longitudinal direction to expand the diameter.
- Insert the 16mm Hose into the Mesh.
- Make sure the hose is properly fit in the Mesh.



- Approximately 25mm from both hose ends must be uncovered. Secure the Mesh using Tie Wraps as shown in the diagram on the right.
- Make sure the Mesh is tight on the hoses.
- Trim the Mesh surface with scissors.



- Install the 16mm Hose covered with the Mesh.
 - ※ Make sure the hoses are not bent and/or warped.



Reuse the factory hose clamp.

- Install the 8mm Hose using the following provided parts.

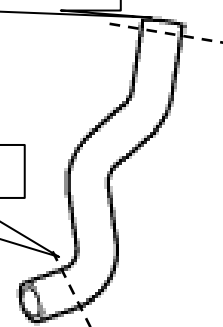
- | |
|---|
| <ul style="list-style-type: none"> • Joint Pipe 8mm • Hose Clamp 8mm (2 pcs.) • Hose 8mm (Cut to 70mm in length from L=3000) |
|---|



- Modify the Lower Radiator Hose.
 - Cut the hose at 30mm from the radiator side.
 - Cut the hose at 5mm from the water inlet housing side.

Cut @ 5mm from the end.

Cut at 30mm from the end.



- Install the Lower Radiator Hose.
 - Make sure the hose does not come in contact with the electric fan's blade.
 - Adjust the installation direction so the hose won't be warped.
- Install the Upper Radiator Hose.



- Bend the Oil Level Gauge Bracket to 55° using pliers as shown in the diagram on the right.



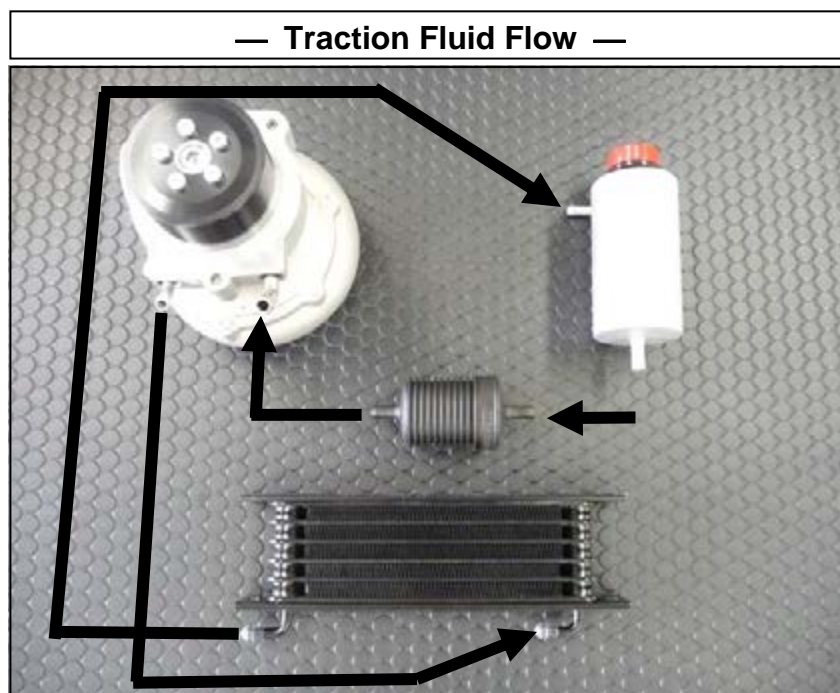
- Secure the Oil Level Gauge using the following provided Parts.



- Level Gauge Bracket
- Cap Bolt M6 L=15 (2pcs.)
- Washer M6 (2 pcs.)
- Flange Nut M6



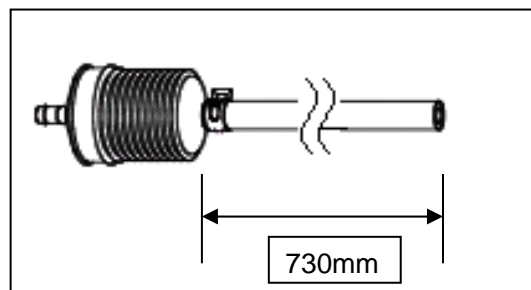
5. INSTALLATION OF TRACTION FLUID HOSE



NOTE

The internal components of the Supercharger Assembly are very precise and exact; foreign objects mixed with Traction Fluid can lead to damage to the Supercharger Assembly. Do not allow foreign objects to mix with the Traction Fluid.

- Cut the Hose Assembly 10mm at 730mm from the fluid filter side.
 - ※ Make sure to cover the hose end to prevent foreign objects from entering to the hose.
- Cut the Corrugated Tube 15mm to 300mm in length. Install the cut Corrugated Tube to the end of the Hose Assembly 10mm.



- Hose Assembly 10mm
- Corrugated Tube 15mm

- Install the Silicone Hose 50mm L=20 to the Fluid Filter.

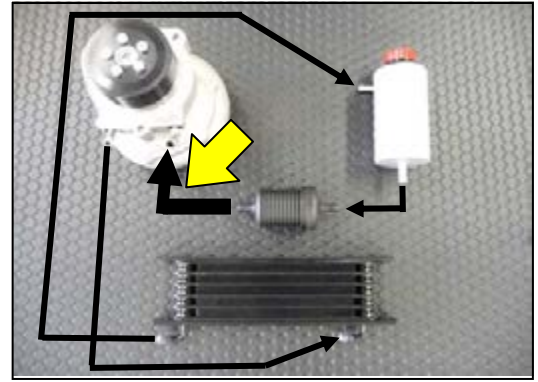
- Silicone Hose 50mm L=20



- Install the hose to the GTS8550.



- GTS8550
- Hose Clamp 10mm



- Cut the remaining Hose Assembly 10mm to 330mm in length.

- Cut the Hose Assembly 8mm to 1390mm and 1440mm in length.

•Hose 8mm L=3000

- Cut the Corrugated Tube 15mm to 1350mm and 880mm in length.

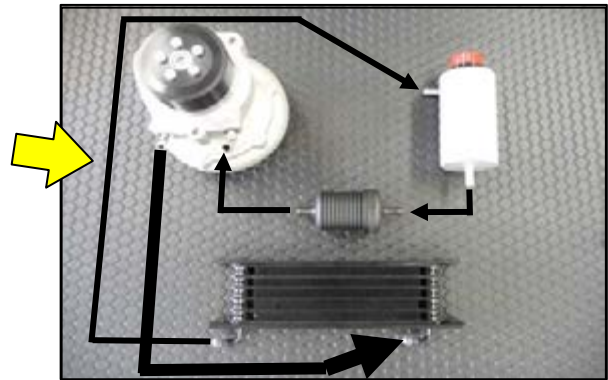
•Corrugated Tube 15mm

- Install 1350mm Corrugated Tube to 1390mm Hose 8mm.

- Install 1390mm Hose 8mm to the GTS8550.

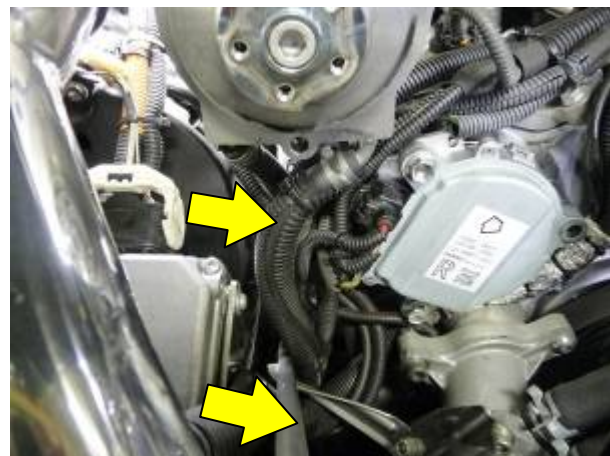
※ Make sure to cover the hose end to prevent foreign objects from entering to the hose.

•Hose Clamp 8mm



- Route the hose installed to the GTS8550 between the engine and Oil Level Gauge.

- Cover the cylinder head cover and vehicle body with cloth to protect them from being damaged; then, temporarily place the GTS8550 on the cylinder head cover.



6. INSTALLATION OF GTS8550



- Remove 3 bolts from the VTC cover on the right bank.

NOTE

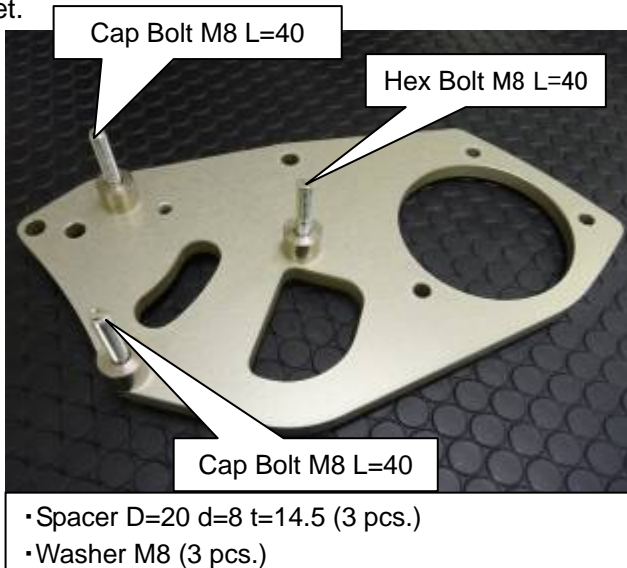
Make sure the VTC cover does not fall.
Make sure oil does not leak. If it does, remove the oil.



- Temporarily bolts and spacers to the S/C Bracket.

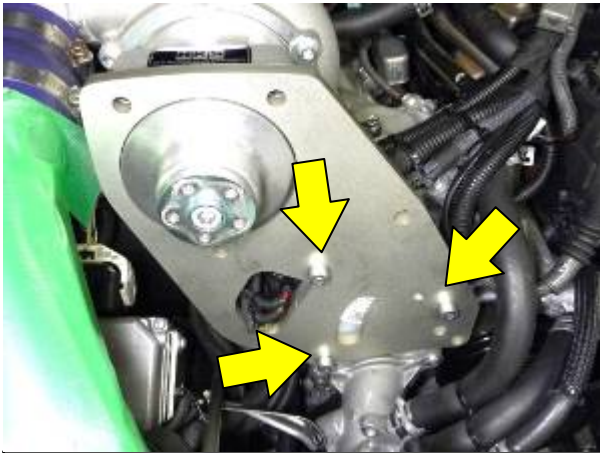


- S/C Bracket No.1
- Spacer D=20 d=8 t=14.5 (3 pcs.)
- Cap Bolt M8 L=60 (2 pcs.)
- Hexagon Bolt M8 L=60
- Washer M8 (3 pcs.)



- Spacer D=20 d=8 t=14.5 (3 pcs.)
- Washer M8 (3 pcs.)

○ Install the S/C Bracket. Make sure the harnesses do not come between the bracket and other parts.



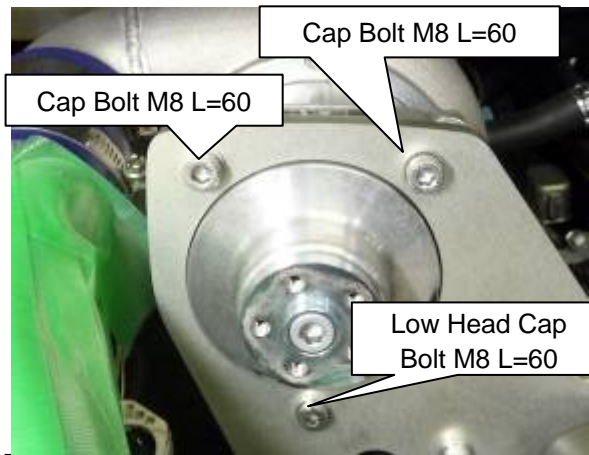
Tighten the S/C Bracket with the VTC cover.
Tightening Torque N·m (kgf·m) T=21(2.14)



Route the harness between the GTS8550 and cylinder head.



VTC harness can get out of the opening for the bracket.



Secure the GTS8550.
Tightening Torque N·m (kgf·m)
T=29(3.00)

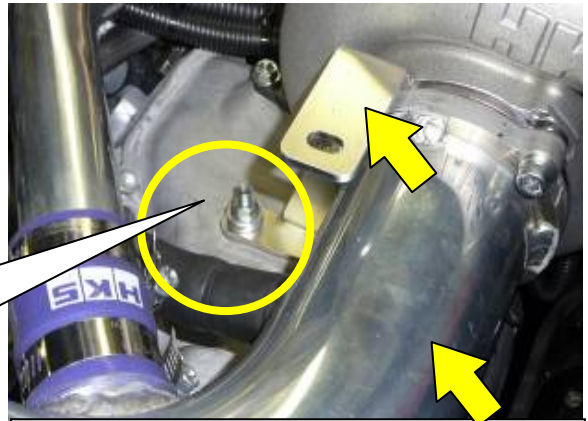
○ Install the Suction Pipe and S/C Bracket No.2.



- Suction Pipe
- S/C Bracket No.2
- Gasket (2 pcs.)
- Collar D=15 d=6 t=3
- Cap Bolt M6 L=25 (3 pcs.)
- Flange Nut M6



- Collar D=15 d=6 t=3
- Flange Nut M6

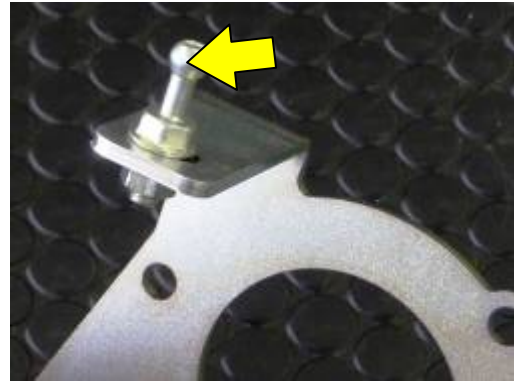


- Cap Bolt M6 L=25 (3 pcs.)
- Washer M6 (3 pcs.)
- Gasket (2 pcs.)

- Install the factory mounting bolt to the S/C Bracket No.2.

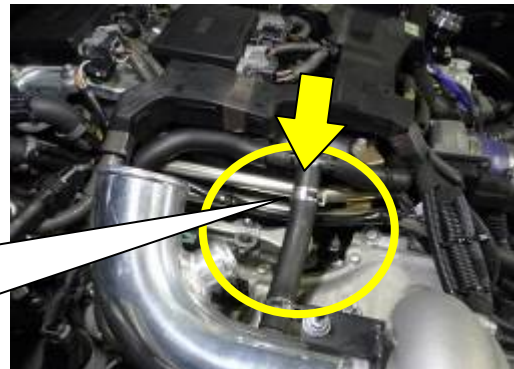


- Mounting Bolt (Reuse)
- Flange Nut M6



- Install Hose 16mm (L=150mm).

- Hose 16mm (150mm)
- Joint Pipe 12-16-12mm
- Hose Clamp 16mm (2 pcs.)
- Tie Wrap (M) (2 pcs.)



Cut the factory blow-by hose at the position the arrow points in the diagram. Cut the Hose 16mm to 135mm, and install the cut hose.

- Install 330mm Hose 10mm to the oil tank and filter.

- Hose Clamp 10mm (2 pcs.)



- Install the oil filter to the sub member.

- Tie Wrap (L) (6 pcs.)



Do not install a Tie Wrap over the place the arrow points in the diagram above to avoid oil leakage.



Install Tie Wraps as shown above.

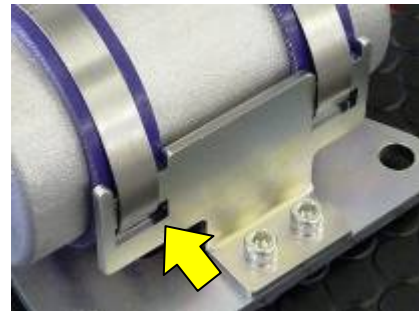
Secure the Hose 10mm with Tie Wraps so it does not come in contact with the alternator.

- Tie Wrap (M)
- Tie Wrap (S)



○ Secure the oil pressure switch harness to the oil tank with Tie Wraps.

- Tie Wrap (M)
- Tie Wrap (S)

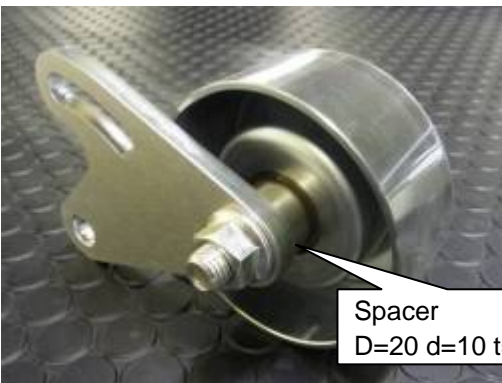


Use this hole to secure the harness.

○ Install the Tensioner Pulley to the Tensioner Pulley Bracket.



- Idler Pulley 70mm
- Pulley Cover
- Tensioner Pulley Bracket
- Spacer D=20 d=10 t=10.5
- Cap Bolt M10 L=45
- Washer M10
- Flange Nut M10



Spacer
D=20 d=10 t=10.5



Tightening Torque N·m (kgf·m)
M10 Bolt T=47(4.79)

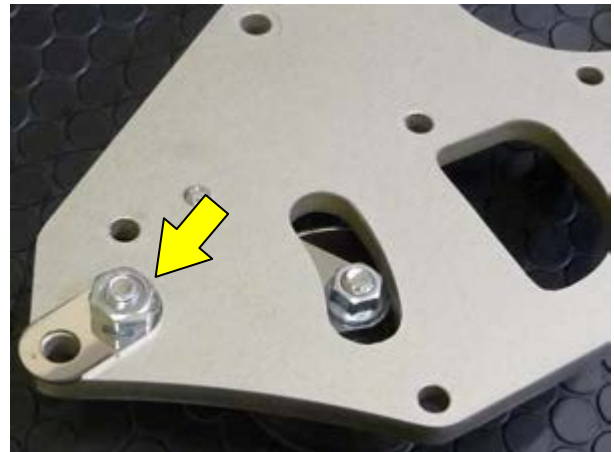
Temporarily install the Tensioner Pulley Bracket to the S/C Bracket.



- Nut Plate M10
- Spacer D=20 d=10 t=5
- Cap Bolt M8 L=20
- Cap Bolt M10 L=35
- Washer M8
- Washer M10



- Cap Bolt M8 L=20
- Cap Bolt M10 L=35
- Washer M8
- Washer M10
- Spacer D=20 d=10 t=5



- Plate Nut M10

○ Temporarily install the Belt 7PK1030.



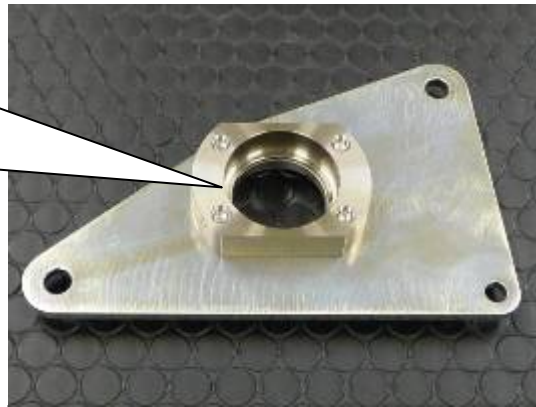
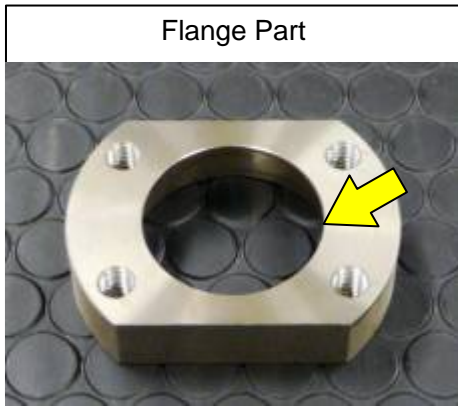
- Belt 7PK1030



○ Temporarily install the bearing holder to the Drive Pulley Bracket.



- Drive Pulley Bracket
- Cap Bolt M8 L=25 (4 pcs.)
- Washer M8 (4 pcs.)

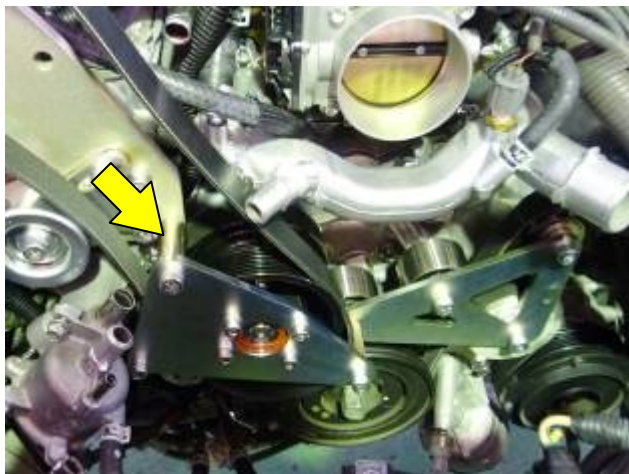


Install the side with the flange to the Drive Pulley Bracket side.

○ Temporarily install the Drive Pulley Bracket.



- Spacer D=20 d=8 L=37.2
- Spacer D=20 d=10 L=39.5
- Cap Bolt M8 L=65
- Cap Bolt M10 L=20
- Cap Bolt M10 L=65
- Washer M8
- Washer M10
- Nut M10



Place the Spacer D=20 d=10 L=39.5 under the belt.

- Spacer D=20 d=10 L=39.5
- Cap Bolt M10 L=65
- Washer M10
- Nut M10



Tighten the Nut M10 with Plate Nut M10.



- Spacer D=20 d=8 L=37.2
- Cap Bolt M8 L=65
- Cap Bolt M10 L=20
- Washer M8

- Rotate the Water Pump Pulley by hand, and adjust the position so it can be rotated smoothly. Secure the Water Pump Bracket.
- Place the belt onto the Auto Tensioner Pulley. Apply appropriate tension to the belt.



Tightening Torque N·m(kgf·m)

M8 Bolt T=21(2.14)

M10 Bolt T=47(4.79)

- Install the S/C Pulley to the GT8550.



- S/C Pulley
- Low Head Cap Bolt M6 L=12 (5 pcs.)



Installing the Belt 7PK1030 with the pulley to the GT8550



Tightening Torque N·m (kgf·m)

M6 Bolt T=12(1.22)

- Install the Idler Pulley.

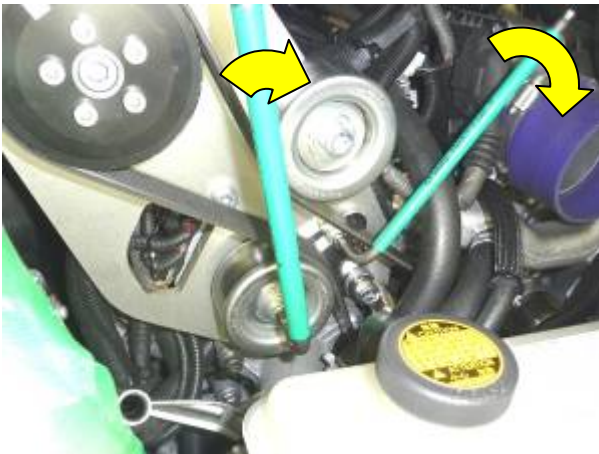
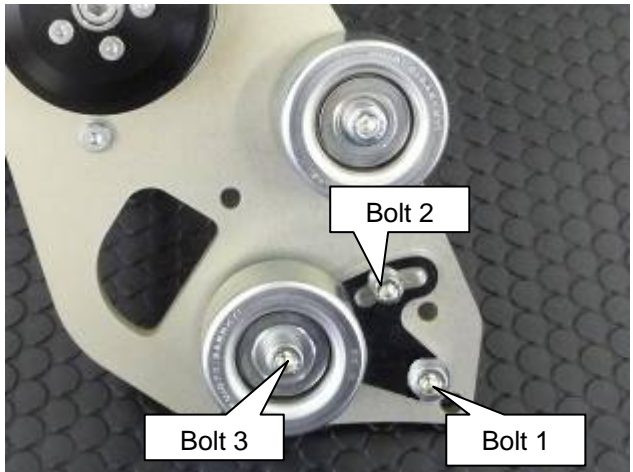


- Idler Pulley 70mm
- Pulley Cover
- Spacer D=20 d=10 t=16.5
- Cap Bolt M10 L=55
- Flange Nut M10
- Washer M10



Tightening Torque N·m (kgf·m)
M10 Bolt T=47(479)

- Apply tension to the Belt 7PK1030.
 - Put an 8mm hexagon wrench to Bolt 3, and then stroke the Pulley 70mm clockwise centering Bolt 1.
 - Tighten Bolt 2, and secure the stroke.
 - Tighten Bolt 2, and secure the tensioner.



Measure the belt tension at the point shown in the diagram above.

Tension Meter Settings

Span Length: 230mm

No. of Ribs: 7

Belt SG: 0.0188g/ (1 rib x 1m long)

Tension: 960N

7. INSTALLATION OF INTERCOOLER, FLUID COOLER CORE

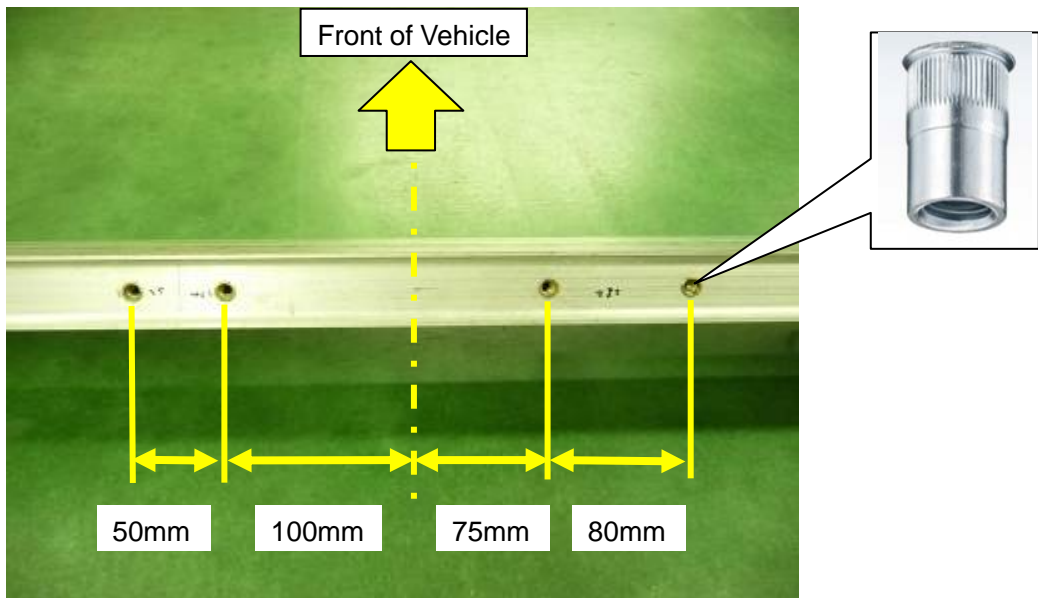


- Remove the outside temperature sensor from the reinforcement.

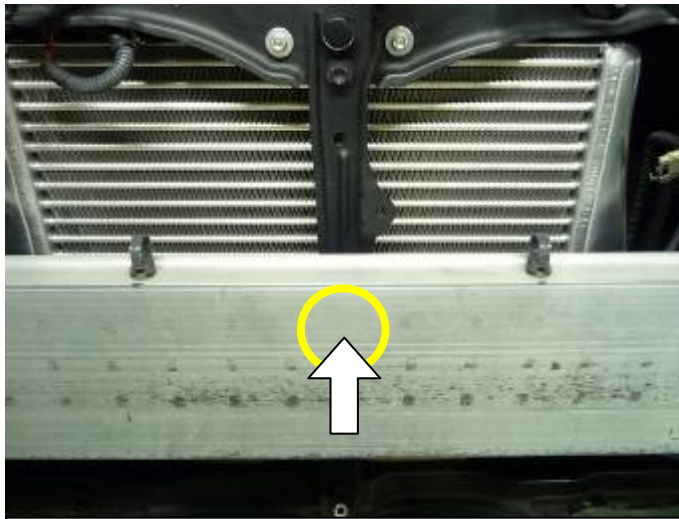


- Install the Blind Nuts on the center line of the reinforcement's bottom toward the vehicle front as shown below.

•Blind Nut M6 (4 pcs.)



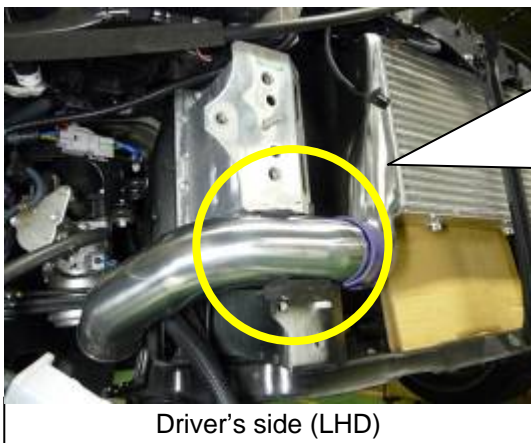
Drill a 9.1mm pilot hole. Install the Blind Nut using a nut fastener.
Recommended Tool: POP MN10A-S/L · PNT110



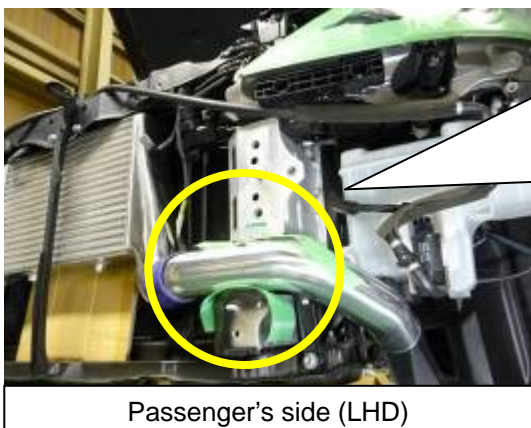
There is a mark by a punch in the circled position. Use this mark as a center line of the reinforcement to drill pilot holes.

○ Modify the reinforcement bracket.

- To install piping, modify the rib part of the reinforcement bracket using a belt sander.
- Paint the modified part of the bracket's bottom matte-black.



Driver's side (LHD)

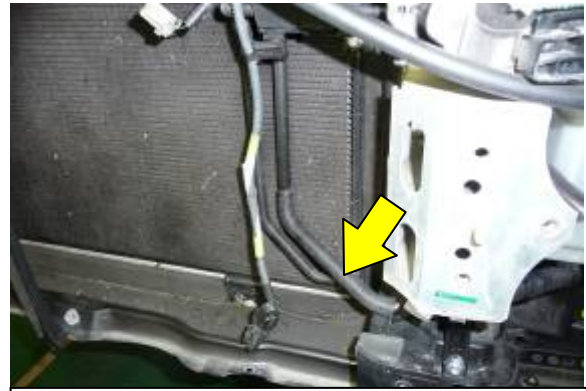


Passenger's side (LHD)

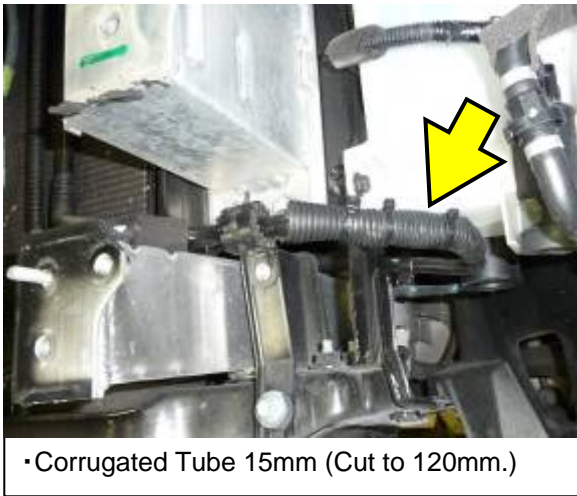


- Install the Corrugated Tube to the A/C pipe.

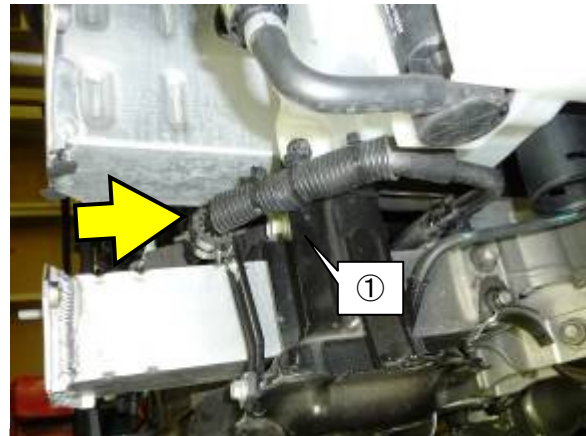
- Corrugated Tube 10mm
- Tie Wrap (L)
- Tie Wrap (M)



Corrugated Tube 10mm (Cut to 200mm.)

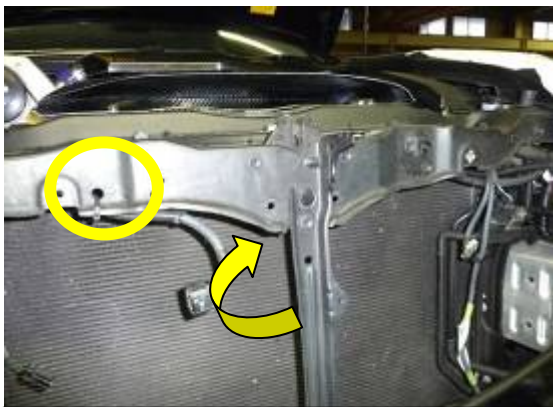


• Corrugated Tube 15mm (Cut to 120mm.)



Push the A/C pipe to rear vehicle body, and secure the pipe to bracket ① on the vehicle side using Tie Wraps.
• Tie Wrap (L) • Tie Wrap (M)

- Remove the harness cover from the back of the hood lock.

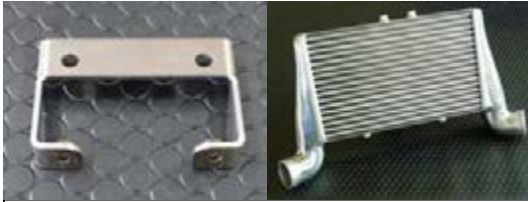


Secure any loose harness with Tie Wraps.

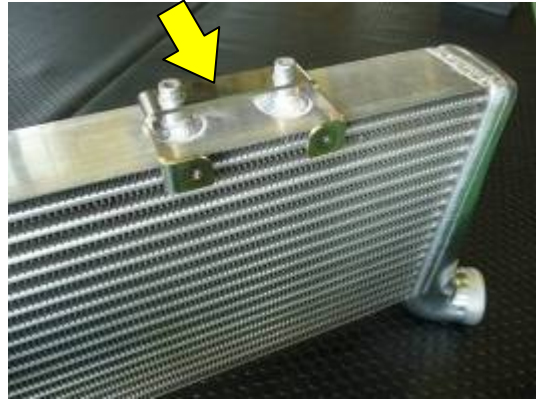


Harness Cover

○ Install Intercooler Bracket No.1.

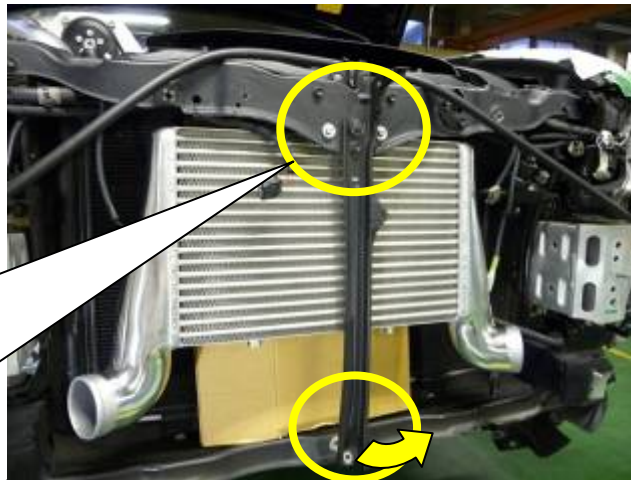


- Intercooler
- Intercooler Bracket No.1
- Cap Bolt M8 L=15 (2 pcs.)
- Washer M8 (2 pcs.)



○ Install the Intercooler

- Cap Bolt M6 L=15 (2 pcs.)
- Large-diameter Washer M6 (2 pcs.)



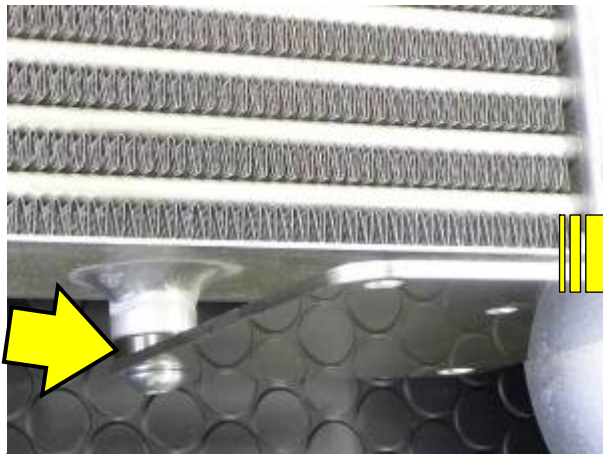
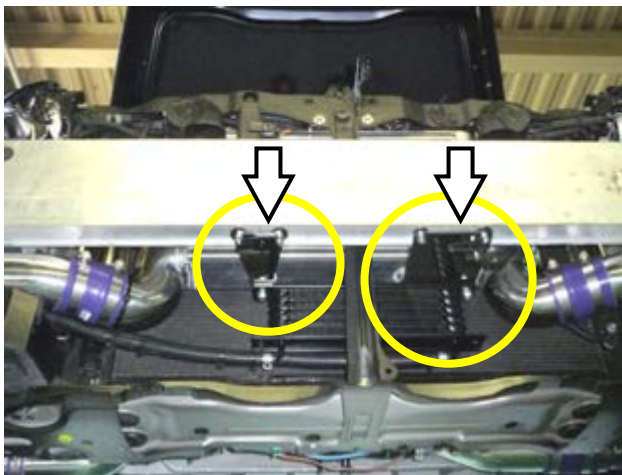
- ① Remove the bolts from the bottom of the center brass.
- ② Cover the A/C condenser and intercooler to protect from being damaged. Pull the lower side of the center brass forward, insert and temporarily install the intercooler.
- ③ Install the factory bolts to the lower side of the center brass.

○ Install the reinforcement.

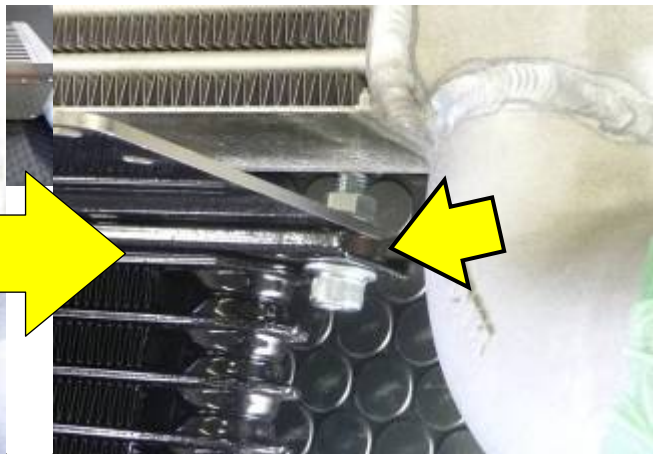
○ Install Intercooler Bracket No.2, No.3, and Oil Cooler Core.



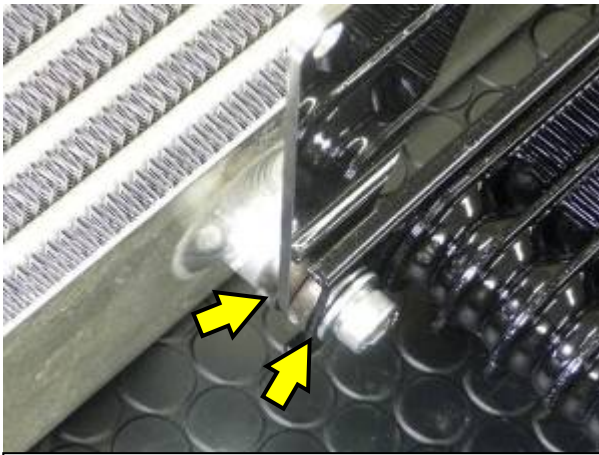
- Intercooler Bracket No.2
- Intercooler Bracket No.3
- Spacer D=20 d=9 t=5 (7 pcs.)
- Cap Bolt M6 L=25 (4 pcs.)
- Cap Bolt M6 L=25
- Cap Bolt M8 L=30
- Button Bolt M8 L=20
- Flange Nut M8
- Washer M6 (4 pcs.)
- Washer M8 (3 pcs.)



【Passenger Side】
Install the Intercooler Bracket No.2 to Intercooler inserting the Spacer D=20 d=9 t=5 using the Button Bolt M8 L=20.

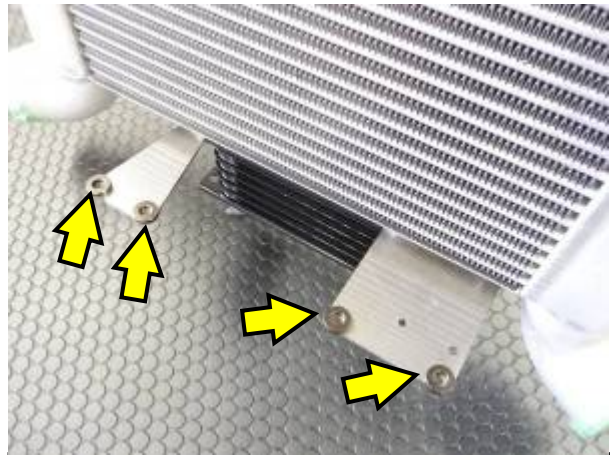


Install Intercooler Bracket No.2 with the Intercooler to the Oil Cooler Core inserting the Spacer D=20 d=9 t=5 using the Cap Bolt M8 L=25, Washer M8, and Flange Nut M8.



【Driver Side】

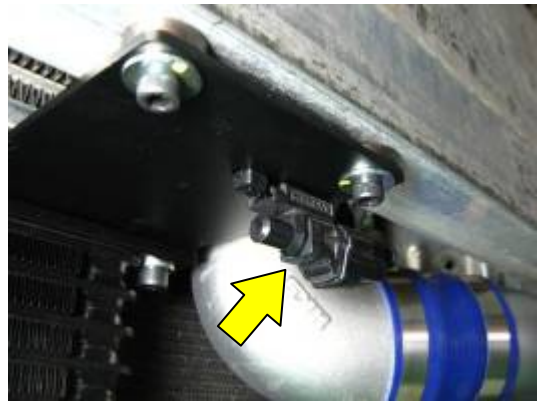
Install Intercooler Bracket No.3 to the Oil Cooler Core in order of Intercooler Bracket No.3, the oil cooler core, Spacer D=20 d=9 t=5, and Intercooler using the Cap Bolt M8 L=30 and Washer M8.



Insert 4 Spacers (D=20 d=9 t=5) and install the intercooler to the reinforcement using the Cap Bolts (M6 L=25) and M6 Washers.

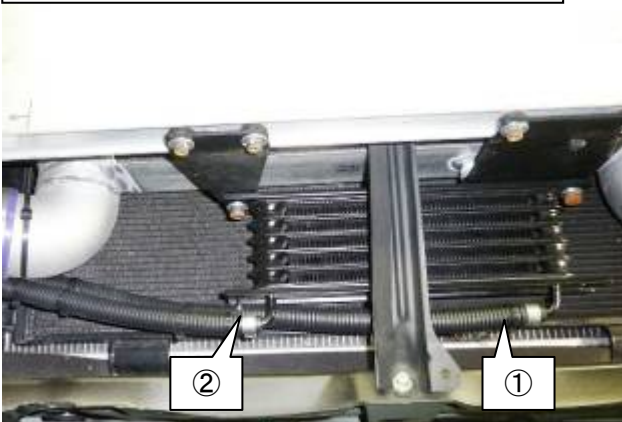
- Install Intercooler Bracket No.2 to the outside temperature meter.

•Tie Wrap (L)



- Install the traction fluid piping.

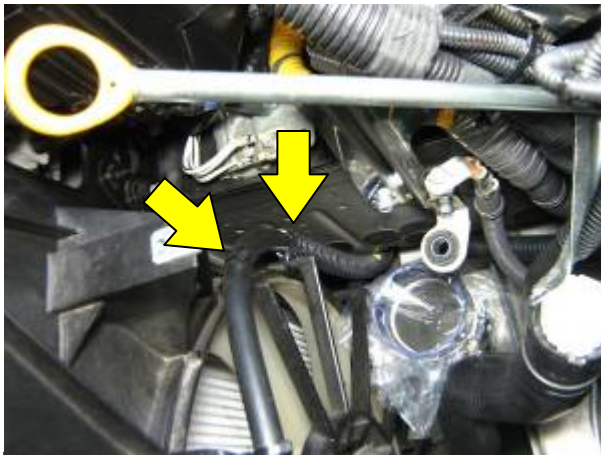
•Hose 8mm •Hose Clamp 8mm (3pcs.)
 •Corrugated Tube 15mm L=4000
 •Tie Wrap (L) •Tie Warp (M) •Tie Wrap (S)



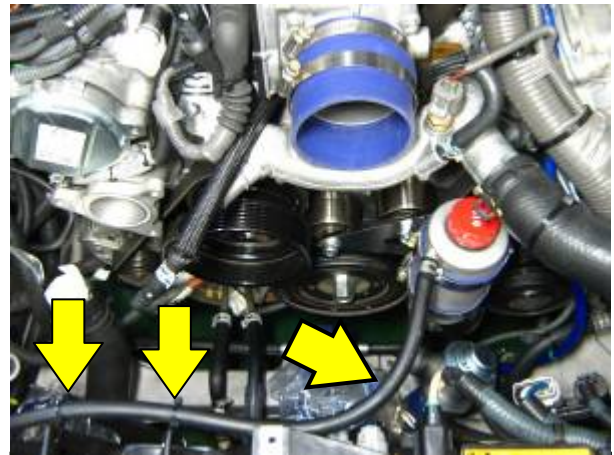
Connect ① to the S/C. (8mm L=1390)
 Connect ② to the oil tank. (Connect the 880mm long $\phi 15$ Corrugated tube to 1440mm long $\phi 8$ tube.)



Route the hose through the place the arrow indicated in the diagram above to pull into the engine.

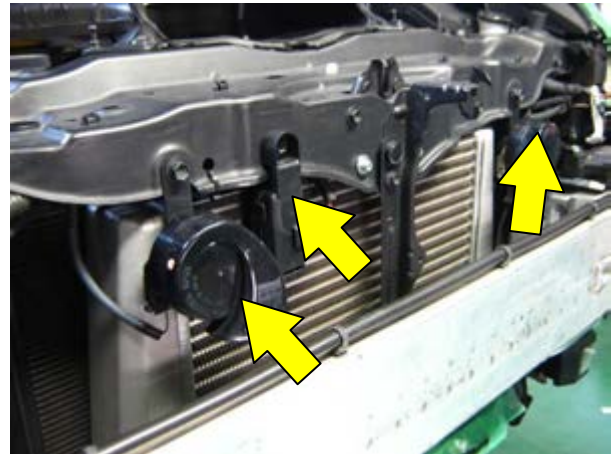


Secure the hose to the electric fan.

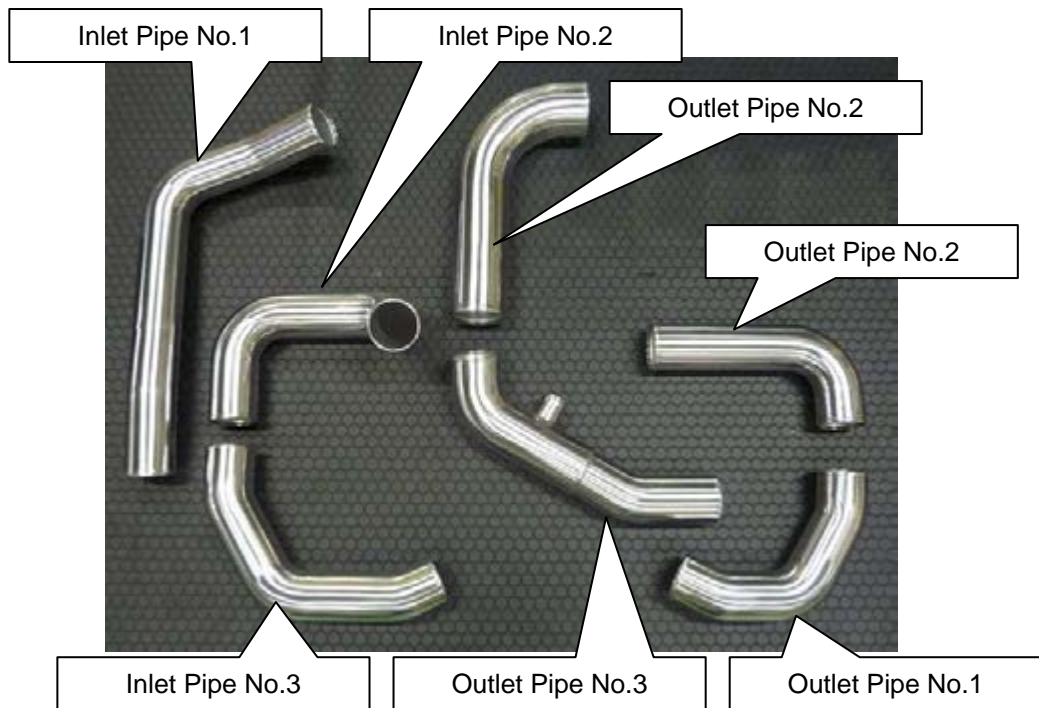


After securing the hose to the electric fan, connect the hose to the oil tank. Secure the hose to the side of the rib to avoid contact with the reservoir tank.

- Install both sides' horns and smog sensor.



8. INSTALLATION OF INTERCOOLER PIPE



- Install the provided Insulator Rubber to Pipe Bracket No.1.



- Insulator Rubber
- Retainer



- Install the Pipe Bracket with a 7mm hole to Inlet Pipe No.1.

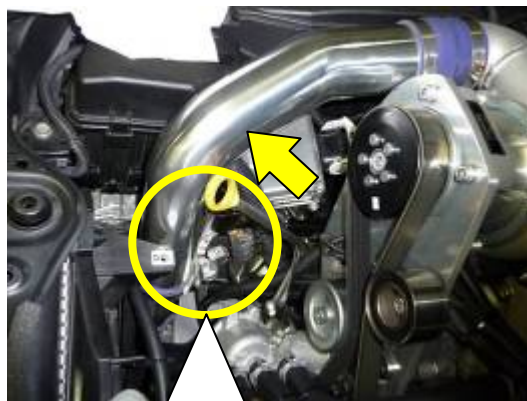


- Inlet Pipe No.1
- Pipe Bracket (Hole Dia. 7mm)
- Silicone Hose 65mm L=20
- Hose Clamp #40

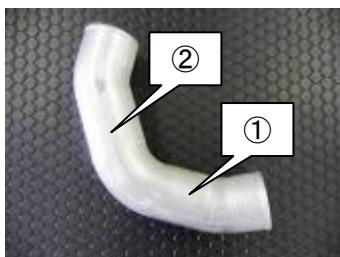


- Temporarily install Inlet Pipe No.1.

- Silicone Hose 60mm—65mm
- Hose Band #40
- Hose Band #36
- Cap Bolt M6 L=30
- Washer Large-dia. M6
- Flange Nut M6



- Temporarily install Inlet Pipe No.3.
 - Place the *shorter* straight portion ① to the intercooler side. (See the diagram below.)

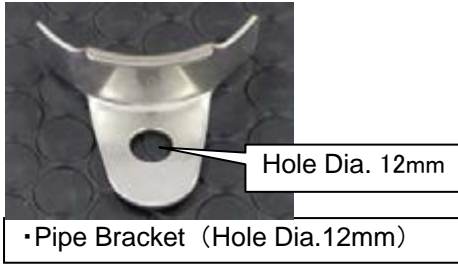


- Inlet Pipe No.3
- Silicone Hose 65mm L=70
- Hose Clamp #44 (2 pcs.)

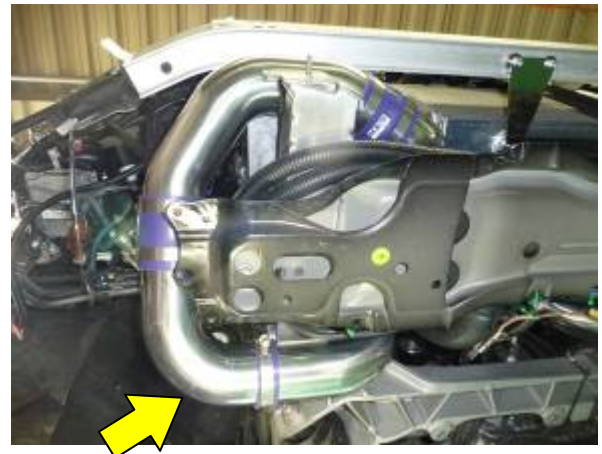
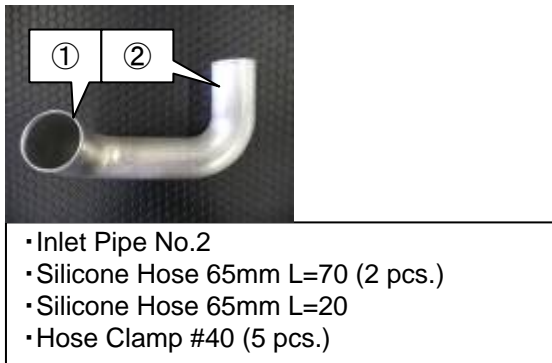


Protect the pipe surface to prevent to be damaged when installing the pipe.

- Install the Pipe Bracket to the front cross member.



- Temporarily install Inlet Pipe No.2.
 - Place the *shorter* straight portion ① to the intercooler side. (See the diagram below.)



- Install the Silicone Hose 65mm L=20 to the pipe. Temporarily install the pipe to the Pipe Bracket using the Hose Clamp #40.



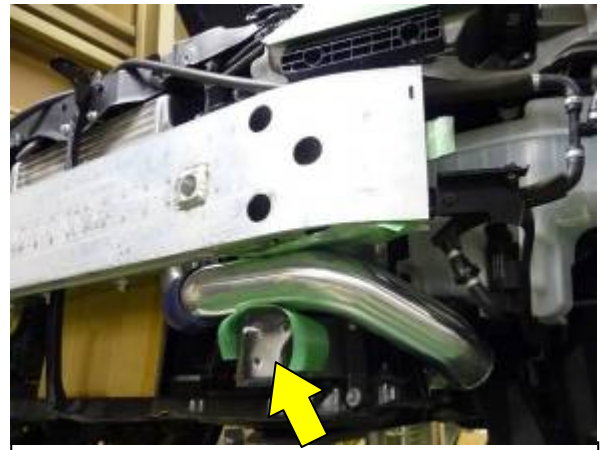
- Adjust the position of Outlet Pipe No.1 so it does not come in contact with the harnesses from the relay box.
- Tighten all bolts, nuts, and hose clamps temporarily installed. Make sure all installed parts do not come in contact with any other parts of the vehicle.



- Temporarily install Outlet Pipe No.1.
 - Place the *shorter* straight portion ① to the intercooler side. (See the diagram below.)

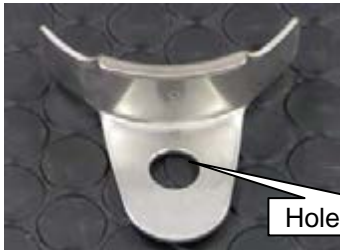


- Outlet Pipe No.1
- Silicone Hose 65mm L=70
- Hose Clamp #44 (2 pcs.)



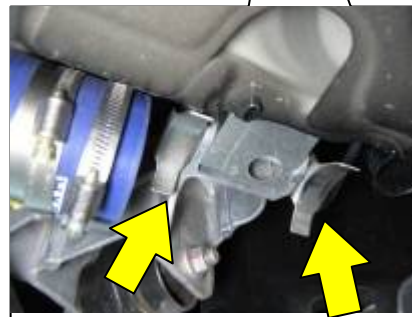
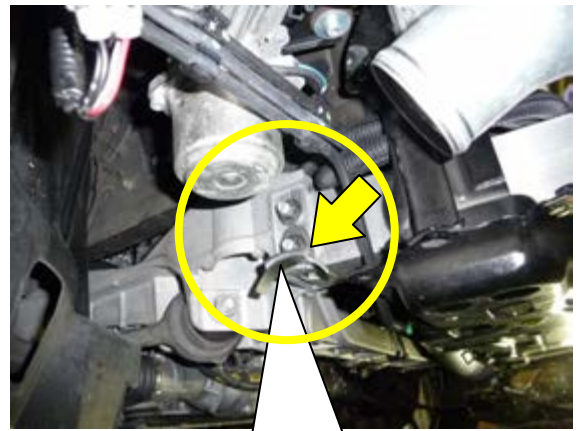
Protect the pipe surface to prevent to be damaged when installing the pipe.

- Install the Pipe Bracket to the front cross member.



Hole Dia.12mm

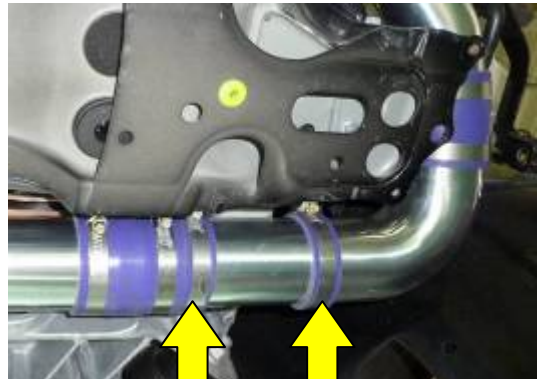
- Pipe Bracket (Hole Dia.12mm) (2 pcs.)



○ Temporarily install Outlet Pipe No.2.



- Outlet Pipe No.2
- Silicone Hose 65mm L=70
- Silicone Hose 65mm L=20 (2 pcs.)
- Hose Clamp #40 (4 pcs.)



- Install the Silicone Hose 65mm L=20 to the pipe. Temporarily install the pipe to the Pipe Bracket using the Hose Clamp #40.

○ Temporarily install Outlet Pipe No.3.

NOTE

- Protect the pipe surface to prevent to be damaged when installing the pipe.



- Outlet Pipe No.3
- Silicone Hose 65mm L=70
- Hose Clamp #40 (2 pcs.)



○ Temporarily install Outlet Pipe No.,4.

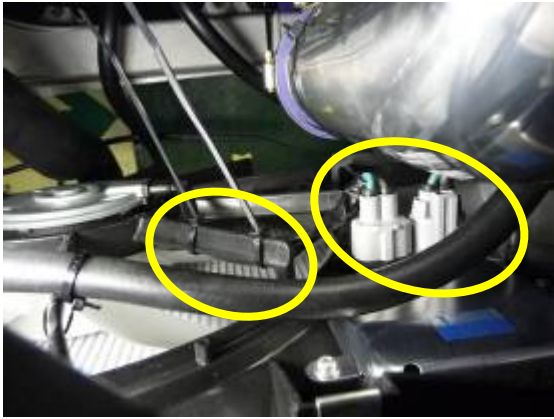


- Outlet Pipe No.4
- Silicone Hose 70mm—80mm
- Silicone Hose 80mm L=70
- Hose Clamp #44
- Hose Clamp #48 (2 pcs.)
- Hose Clamp #56



- Adjust the position of Outlet Pipe No.4 so it does not come in contact with the electric fan connector.
- Secure the electric fan harness to the electric fan's rib.

•Tie Wrap (M)



-
- Tighten all bolts, nuts, and hose clamps temporarily installed. Make sure all installed parts do not come in contact with any other parts of the vehicle.

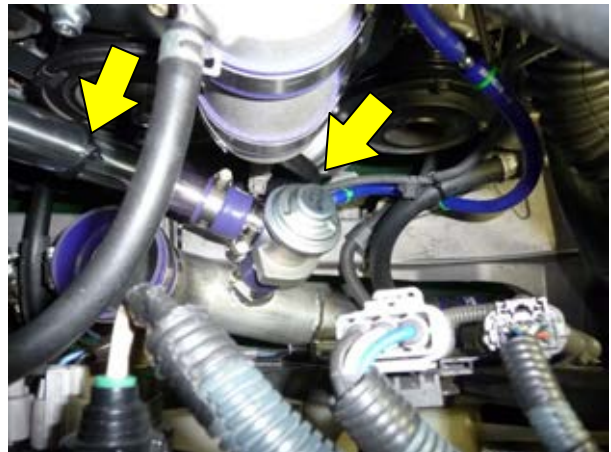
9. INSTALLATION OF BLOW-OFF VALVE



- Install the Blow-off Valve and Blow-off Pipe No.2.



- Blow-off Valve
- Blow-off Pipe No.2
- Silicone Hose 35mm L=55 (2 pcs.)
- Hose Clamp #20 (4 pcs.)



- Install Blow-off Pipe No.1.



- Blow-off Pipe No.1
- Silicone Hose 35mm L=55 (2 pcs.)
- Hose Clamp #20 (4 pcs.)



- Adjust the position of Blow-off Pipe No.1 so it does not come in contact with the drive pulley bracket cap bolt M10.
- Secure Blow-off Pipe to Outlet Pipe No.4 using Tie Wraps.

- Tie Wrap (L)



- Secure the Traction Fluid Hose to Outlet Pipe No.4.

- Tie Wrap (L)
- Tie Wrap (M)



10. EXTENSION OF AIRFLOW HARNESS

The following procedure only depicts the extension of the airflow harness on the *left* bank. Repeat this procedure for the *right* bank as well.

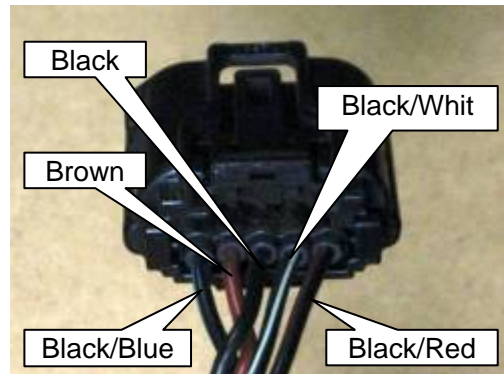
- Remove the airflow harness cover.



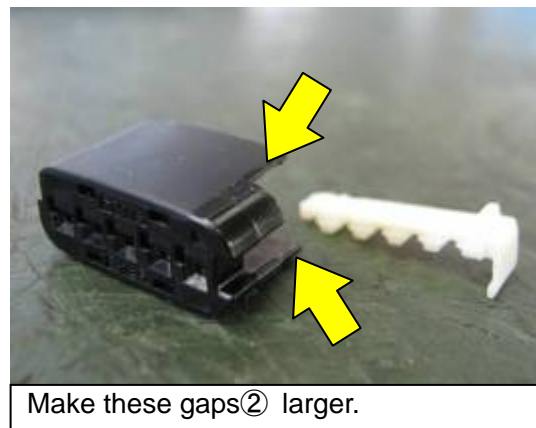
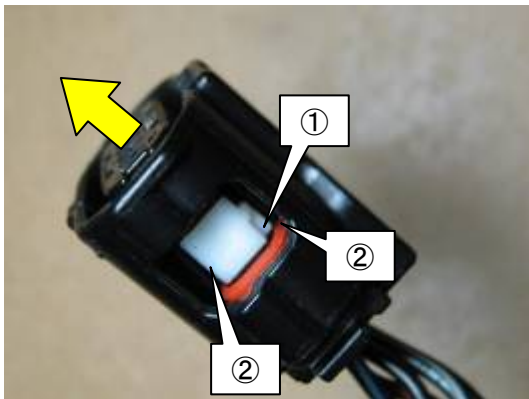
- Make sure the factory harness colors are as follows (from the left viewing from the terminal insert.)

Black/Blue → Brown → Black → Black/White → Black/Red

Make a note if the color order is different.



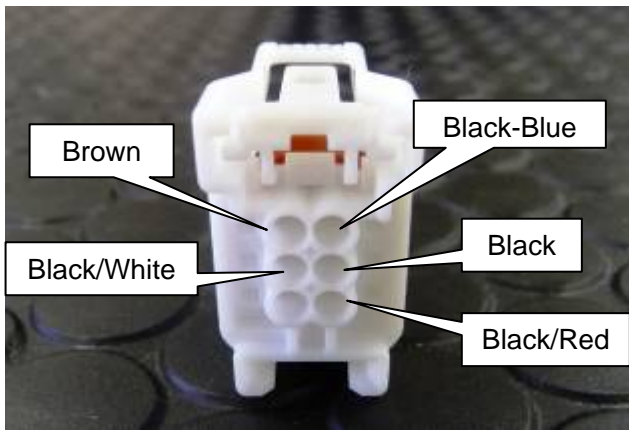
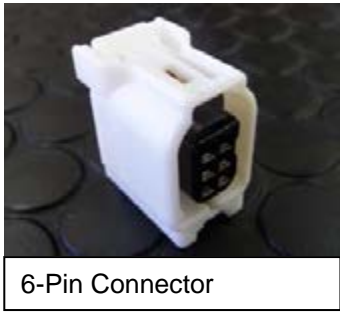
- Insert the compact precision screwdriver into the hole①, and pull out the retainer (white resin part).
- Insert the flathead precision screwdriver into the both sides' gap②. Move the screwdriver up and down to make the gap larger. Remove the front holder.



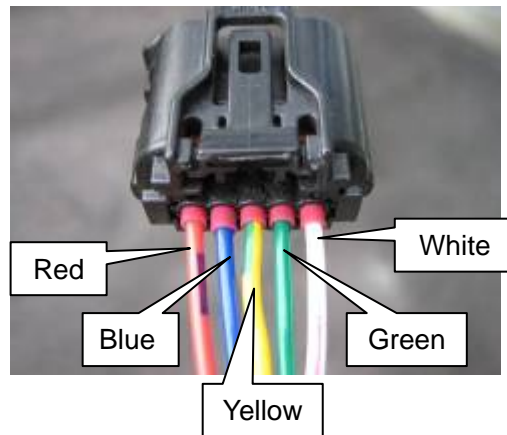
- Pull the lock up to release it using the precision screwdriver. Pull the terminal out.



- Insert the removed terminal to the 6-Pin connector.



- Insert the Airflow Extension Harness terminal to the factory airflow connector



- Reinstall the removed retainer and front holder.

- Secure the harness using the Tie Wrap.

•Tie Wrap (L)

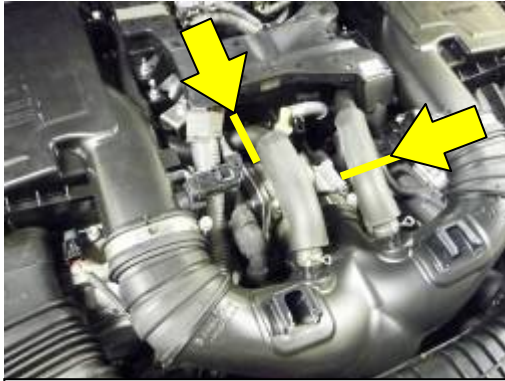


11. MODIFICATION / CONNECTION OF AIR PIPING

【Blow-by Return】

- Cut the blow-by hose at the position shown in the diagram on the lower left, and connect the hoses using the 12mm Joint Hose.

- Joint Pipe 12mm
- Tie Wrap (M)

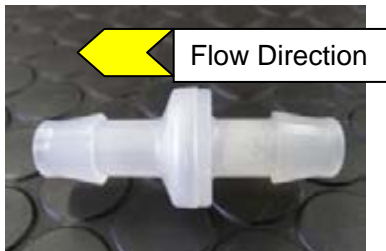


Stock Blow-by Hose

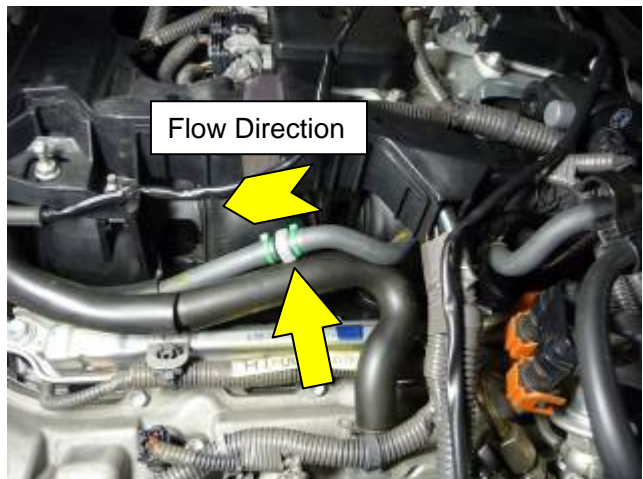


【Vacuum Piping】

- Cut the canister purge hose. Insert the One Way Valve between the hose, secure the valve using Tie Wraps.

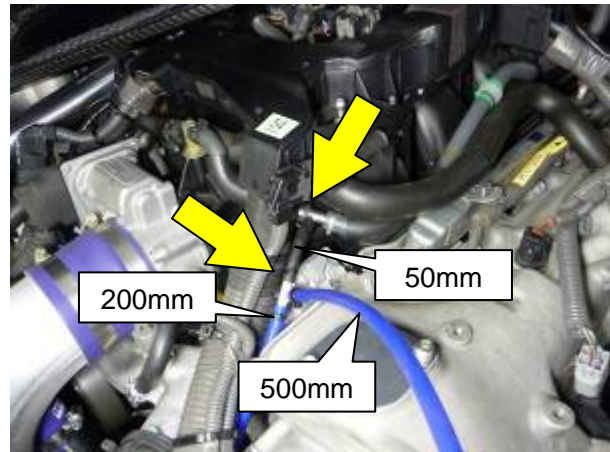


- One Way Valve
- Tie Wrap (S)



【Pressure Sensor】

- Cut the 4mm Hose to 50mm in length.
- Cut the canister purge hose. Connect the cut 50mm long 4mm Hose using the T-Fitting 8-4-8mm.
- Cut the 4mm Hose to 500mm in length.
- Connect the T-Fitting 4-4-4mm to the 50mm long 4mm Hose.
- Connect the 500mm long 4mm Hose to the T-Fitting 4-4-4mm.
- Cut the 4mm Hose to 200mm in length.
- Install the 200mm long 4mm Hose to the T-Fitting 4-4-4mm.



- T-Fitting 8-4-8mm
- T-Fitting 4-4-4mm
- Hose 4mm
- Tie Wrap (S)

- Install the Hose 6mm and Joint Pipe 4-6mm to the Pressure Sensor.
- Cut the Hose 4mm to 780mm in length, and install the cut hose to the Joint Pipe 4-6mm.
- Install the Air Filter 4mm to the Hose 4mm.



- Pressure Sensor
- Joint Pipe 4-6mm
- Hose 6mm
- Hose Clamp 6mm (2 pcs.)
- Hose 4mm
- Air Filter 4mm

- Install the Pressure Sensor to the harness bracket.
- Connect the Air Filter 4mm to the 500mm long Hose 4mm.

- Flange Nut M6
- Tie Wrap (S)



【Blow-off Operating Piping】

- Cut the Hose 6mm to 425mm in length, and install the cut hose to the 200mm long Hose 4mm.
- Secure the Hose 6mm to the A/C hose and engine harness using Tie Wraps.

- | |
|--|
| <ul style="list-style-type: none">• Joint Pipe 4-6mm• Hose 6mm• Hose Clamp 6mm (2 pcs.)• Tie Wrap (S)• Tie Wrap (M)• Tie Wrap (L) |
|--|

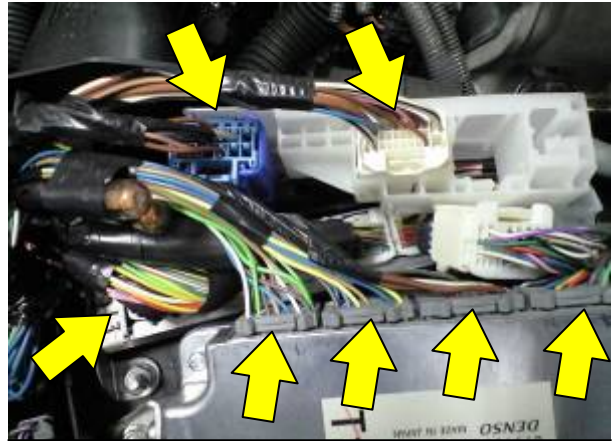


12. INSTALLATION OF F-CON iS

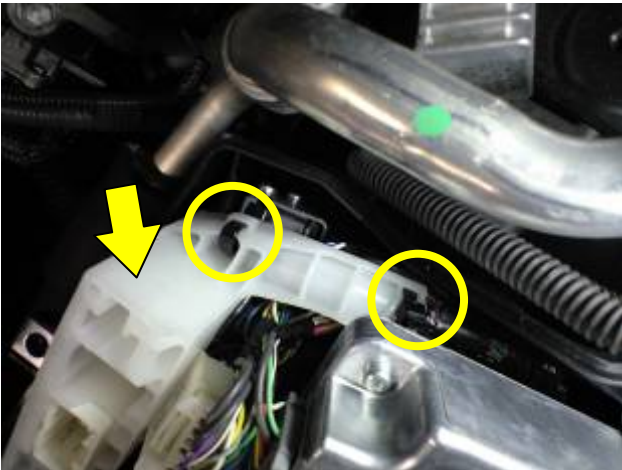
- Before installing the F-CON iS



Remove the cover of the ECU case.



Disconnect the ECU connectors (6 pcs.) from the case.
Disconnect the ECT connectors (4 pcs.).
Disconnect the relay connectors (2 pcs.) from the white resin case.



Cut two tie wraps, and remove the white resin



Disconnect the connector from the case.

- Install the ECU side's F-CON Harness.



• F-CON Harness (ECU Side)



After installing the F-CON Harness, connect the ECT connector.



(Ref.) After the ECT was removed.



Route the F-CON Harness as shown above.



Mount the VAC using a double-sided tape.



Modify the ECU box so the harness can be routed. Reinstall the box.



- Remove the entrance molding of the passenger's side and side cover of the front-seat foot area lining of a passenger compartment; then, turn over the lining.



- Pull the ECU side's F-CON Harness and Pressure Sensor Harness into the vehicle interior from the grommet next to the battery.



Pressure Sensor Harness



- Route the F-CON iS Communication Cable terminal between the center tunnel and blower unit from the driver's side to passenger's side.
- Insulate the white and brown terminals of the F-CON iS Communication Cable.



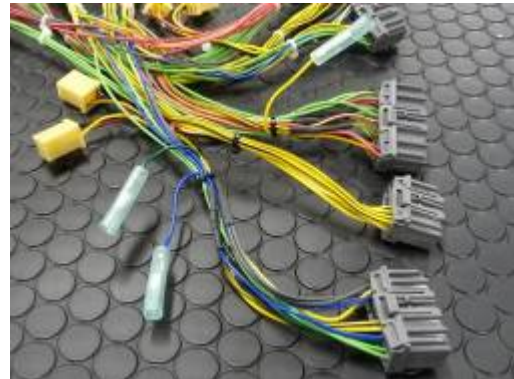
F-CON iS Comm. Cable



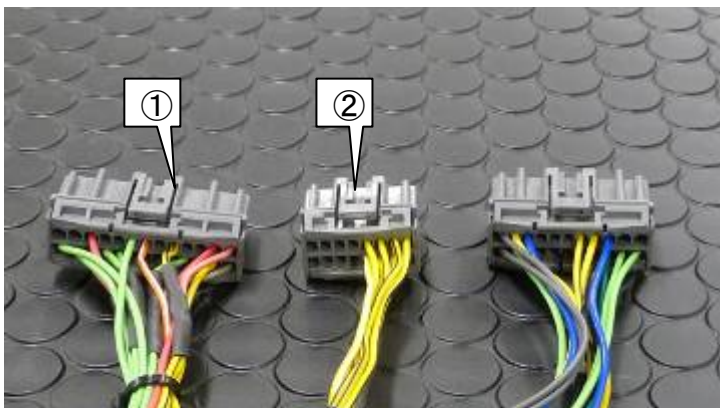
- Connect the F-CON is Communication Cable and OSC Harness to the **F-CPN Connectors** tied with **black Tie Wraps**.



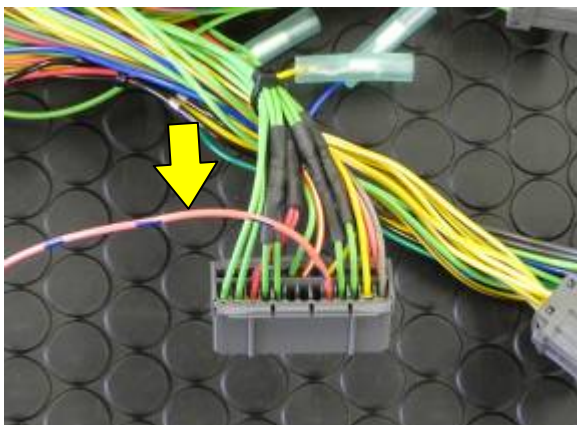
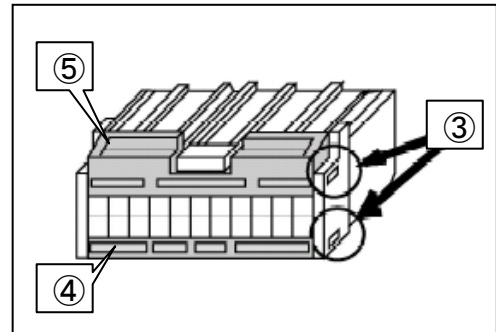
• F-CON Harness (F-CON Side)
• OSC Harness



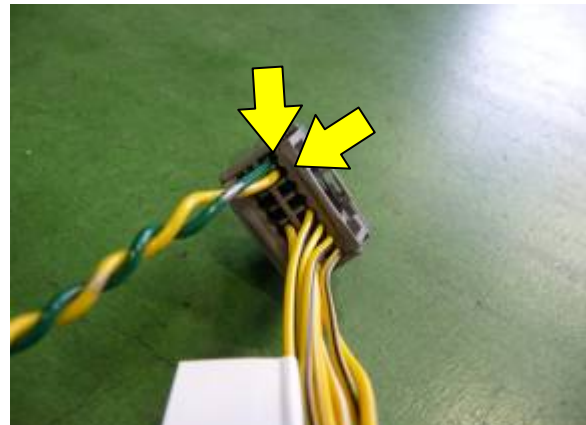
Harnesses tied with black Tie Wraps



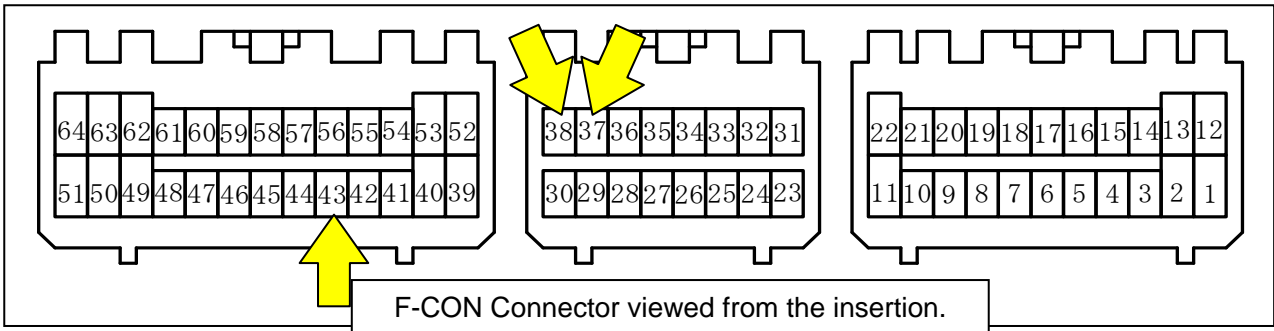
Release the locks③ on both sides of the connector①.
Lift the cover④.
Release the locks③ on both sides of the connector②.
Lift the cover⑤.



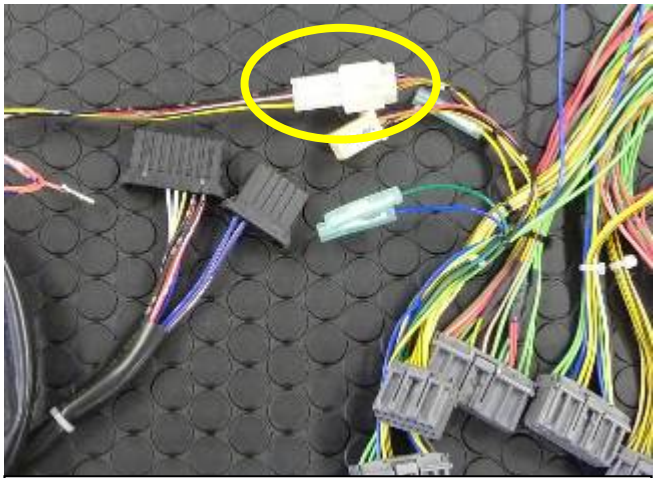
Connect the red/blue wire of the OSC Harness to No.43 port of the connector①.
Press the cover④ until it is locked.



Connect the yellow wire to No.37 port of the connector②, green wire to No.38 port of the connector.
Press the cover⑤ until it is locked.



Improper insulation and wrong connection may cause damage not only to the F-CON iS but also to fuses of the vehicle.

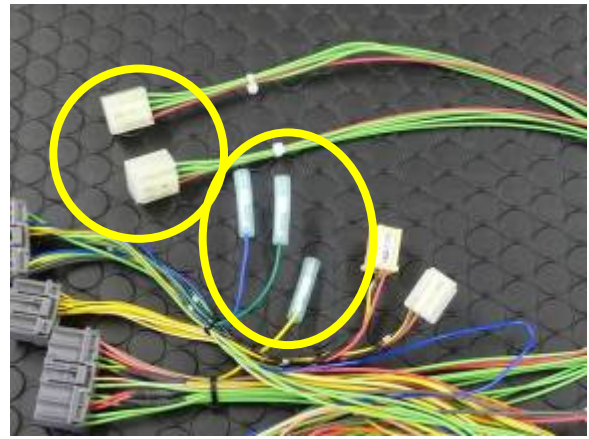
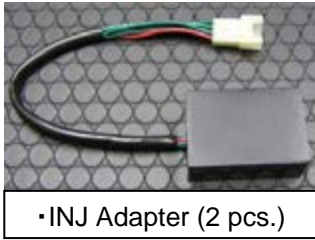


Connect the OSC Harness connector to the F-CON side's harness.

- Connect the OSC Harness to the ECU side's harness.
- Connect the F-CON side's F-CON harness to the ECU side's F-CON harness.
-



- Connect the bullet terminals of the Pressure Sensor Harness to the same color bullet terminals.
- Connect 2 INJ Adapters to the 6-Pin connector.



- Connect F-CON iS Communication Cable connectors to the terminal of the diagnosis system.



- Connect the OSC to the harness.
- Connect two of the F-CON iS to the harness.
- Modify the foam board on a front-seat foot area of a passenger compartment, and store the F-CON iS, OSC, and INJ Adapter in the board as shown in the diagram on the right.

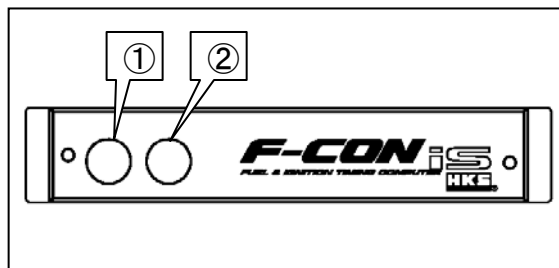


•F-CON iS (2 pcs.)
•OSC



《To monitor the data from the F-CON iS》

To monitor the data from the F-CON iS on the on-board display, connect the AV output cable to the terminal① of the F-CON iS connected to the F-CON harness tied with black Tie Wraps, and connect the display switch to the terminal②. (AV output cable is not included in the kit.)



※ The F-CON iS included in this kit has no function to change the items can be shown on the display.

<1ページ>		<2ページ>	
OBD A/F補正值1	バックライト最小値 : -30.0[%] バックライト最大値 : 30.0[%] 黄バ-設定値 : -10.0[%] 赤バ-設定値 : -20.0[%] 赤バ-位置設定 : 最小値側	エンジン回転数	バックライト最小値 : 0[r/min] バックライト最大値 : 8000[r/min] 黄バ-設定値 : 5000[r/min] 赤バ-設定値 : 7000[r/min] 赤バ-位置設定 : 最大値側
OBD A/F補正值2	バックライト最小値 : -30.0[%] バックライト最大値 : 30.0[%] 黄バ-設定値 : -10.0[%] 赤バ-設定値 : -20.0[%] 赤バ-位置設定 : 最小値側	吸気温	バックライト最小値 : -20[°C] バックライト最大値 : 130[°C] 黄バ-設定値 : 80[°C] 赤バ-設定値 : 90[°C] 赤バ-位置設定 : 最大値側
スロットル開度	バックライト最小値 : 0[%] バックライト最大値 : 100[%] 黄バ-設定値 : 80[%] 赤バ-設定値 : 90[%] 赤バ-位置設定 : 最大値側	圧力	バックライト最小値 : 0.00[x100kPa] バックライト最大値 : 2.00[x100kPa] 黄バ-設定値 : 1.80[x100kPa] 赤バ-設定値 : 2.00[x100kPa] 赤バ-位置設定 : 最大値側
OBD A/F学習値1	バックライト最小値 : -30.0[%] バックライト最大値 : 30.0[%] 黄バ-設定値 : -10.0[%] 赤バ-設定値 : -20.0[%] 赤バ-位置設定 : 最小値側	1770	バックライト最小値 : 0[mV] バックライト最大値 : 5000[mV] 黄バ-設定値 : 3000[mV] 赤バ-設定値 : 4000[mV] 赤バ-位置設定 : 最大値側
OBD A/F学習値2	バックライト最小値 : -30.0[%] バックライト最大値 : 30.0[%] 黄バ-設定値 : -10.0[%] 赤バ-設定値 : -20.0[%] 赤バ-位置設定 : 最小値側	水温	バックライト最小値 : -20[°C] バックライト最大値 : 120[°C] 黄バ-設定値 : 100[°C] 赤バ-設定値 : 105[°C] 赤バ-位置設定 : 最大値側
A/F	バックライト最小値 : 8.0 バックライト最大値 : 20.0 黄バ-設定値 : 16.0 赤バ-設定値 : 18.0 赤バ-位置設定 : 最大値側	スロットル開度	バックライト最小値 : 0[%] バックライト最大値 : 100[%] 黄バ-設定値 : 70[%] 赤バ-設定値 : 90[%] 赤バ-位置設定 : 最大値側
<3ページ>			
エンジン回転数	バックライト最小値 : 0[r/min] バックライト最大値 : 8000[r/min] 黄バ-設定値 : 5000[r/min] 赤バ-設定値 : 7000[r/min] 赤バ-位置設定 : 最大値側		
電源電圧	バックライト最小値 : 0.0[V] バックライト最大値 : 16.0[V] 黄バ-設定値 : 13.0[V] 赤バ-設定値 : 12.0[V] 赤バ-位置設定 : 最小値側		
圧力	バックライト最小値 : 0.00[x100kPa] バックライト最大値 : 3.00[x100kPa] 黄バ-設定値 : 1.60[x100kPa] 赤バ-設定値 : 1.80[x100kPa] 赤バ-位置設定 : 最大値側		
スロットル開度	バックライト最小値 : 0[%] バックライト最大値 : 100[%] 黄バ-設定値 : 80[%] 赤バ-設定値 : 90[%] 赤バ-位置設定 : 最大値側		
水温	バックライト最小値 : -20[°C] バックライト最大値 : 130[°C] 黄バ-設定値 : 100[°C] 赤バ-設定値 : 105[°C] 赤バ-位置設定 : 最大値側		
車速	バックライト最小値 : 0[km/h] バックライト最大値 : 320[km/h] 黄バ-設定値 : 320[km/h] 赤バ-設定値 : 320[km/h] 赤バ-位置設定 : 最大値側		

《To Use with CAMP2》

Refer to < When the vehicle's self-diagnosis connector is used > on page 10 and 11 of the CAMP2 installation manual for installation.

- The F-CON Connecting Cable or hexode four-core straight module cable must be prepared separately.

-
- Reinstall the entrance molding of the passenger's side and side cover of the front-seat foot area lining of a passenger compartment.

NOTE

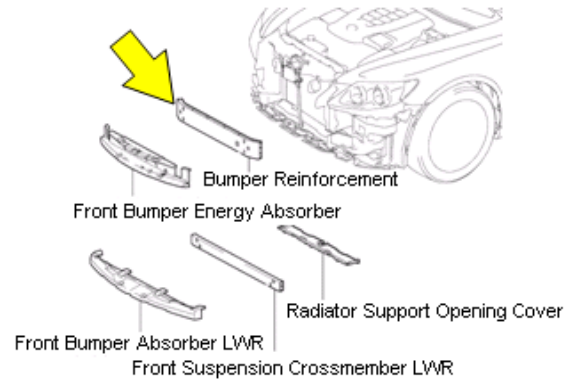
- When installing the side cover, make sure not to pinch the F-CON harness.

-
- Connect the Pressure Sensor Harness connector.
 - Reinstall the battery. Do not reconnect the cable.



13. REINSTALLATION OF FACTORY PARTS

- Reinstall the bumper reinforcement.



- Reinstall the front bumper.

NOTE

- Make sure the fog light bracket does not come in contact with the fog light and cause damage to the light.

- Cut the factory hose 8mm to 25mm to 30mm, and install the cut hose to the thermo housing.



- Reinstall the radiator reservoir tank.

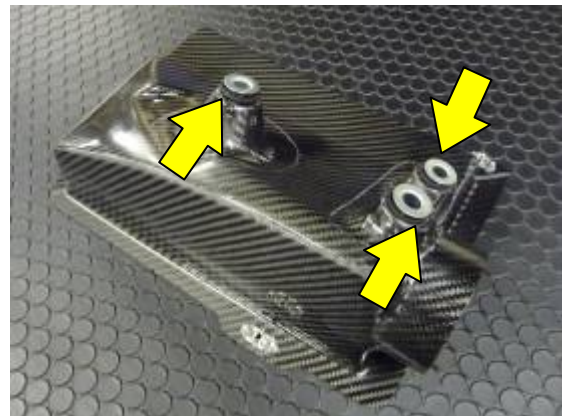
14. INSTALLATION OF AIR CLEANER BOX.



- Install the Mounting Rubbers to the Lower Air Cleaner Box.

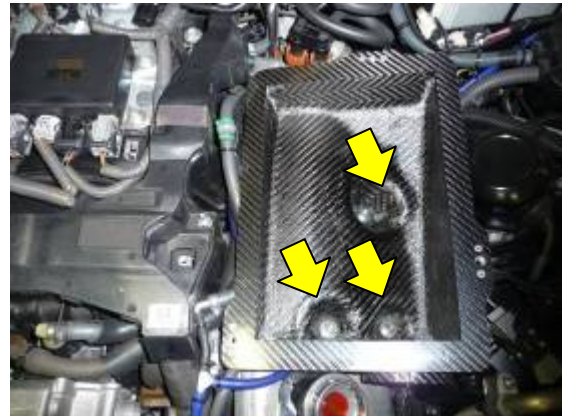


- Lower Air Cleaner Box.
- Mounting Rubber (3 pcs.)
- Retainer (3 pcs.)

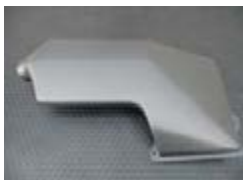


- Install the Lower Air Cleaner Box.

- Cap Bolt M6 L=25 (3 pcs.)
- Washer M6 Large Dia. (3 pcs.)



- Install 2 airflow sensors to the Upper Air Cleaner Box.



- Upper Air Cleaner Box
- Cap Bolt M4 L=15 (4 pcs.)
- Spacer D=10 d=4 t=5 (4 pcs.)
- Washer M4 (4 pcs.)



- Install the factory air cleaner to the Lower Air Cleaner Box.
- Install the Upper Air Cleaner Box.

- Silicone Hose 70mm L=55
- Hose Clamp #44 (2 pcs.)
- Button Bolt M5 L=15 (3 pcs.)



- Adjust the position of the airflow sensor harness.
- Connect the airflow sensor connector.

NOTE

- Connect connector of right bank side to the sensor of right bank side and the connector of left side bank to the sensor of left bank side.



CAUTION

- If the connectors are connected to the wrong sides, the fuel management will have a problem and the engine might be damaged.

15. FILLING TRACTION FLUID AND ENGINE COOLANT

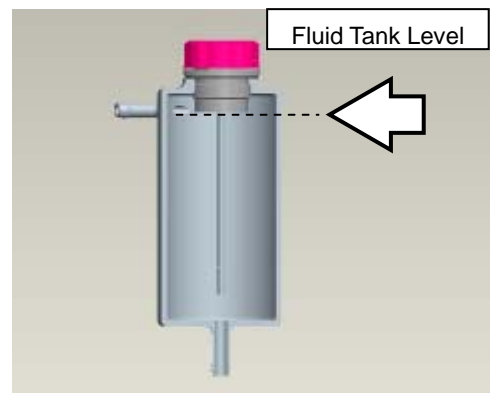


• Traction Fluid

NOTE

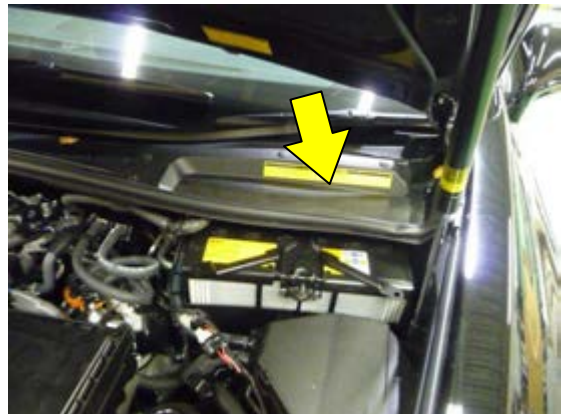
Do not allow foreign objects to mix with the Traction Fluid. The internal components of the Supercharger Assembly are very precise and exact; foreign objects mixed with Traction Fluid can lead to damage to the Supercharger Assy.

- Make sure that there are no foreign objects in the traction tank.
- Add 450cc of Traction Fluid to the Oil Tank (up to the dotted line in the diagram). Close the cap properly and securely.



-
- Prepare 5 liters of engine coolant.
 - Pour engine coolant to the reservoir tank referring to the instruction on the tank.

-
- Reconnect the cables to the battery.
 - Install the cowl top ventilator louver LH.



16. CONFIRMATION AFTER INSTALLATION / CHECKING TRACTION FLUID VOLUME

Check the following after the installation process is complete.

(1) Check off the following before starting the engine:

	Items to confirm:	Check
1	Make sure the hose layout is correct.	
2	Make sure the wiring harnesses and installed components do not come in contact with any other parts on the vehicle.	
3	Make sure the harness is not pinched at any point.	
4	Make sure the unused connectors on the F-Con + VAC Harnesses are left open.	
5	Make sure all bolts (especially the pulley bolts) are tightened properly.	
6	Make sure the belt is properly aligned with the grooves of the pulley.	
7	Make sure the Traction Fluid is at the correct level.	
8	Make sure all pipes and hoses are routed and connected correctly.	
9	Make sure hoses are not kinked or bent.	
10	Make sure all hose clamps are tighten properly	
11	Make sure all bolts and nuts are tightened.	
12	Make sure all installed components are secured.	
13	Make sure the negative cable terminal is securely attached to the battery.	
14	Make sure the engine oil level dipstick is between H-L	

*The supplied F-CON iS unit is pre-programmed.

○ Prepare 130cc of Traction Fluid in a beaker or small container, open the oil cap and start the engine.

○ Immediately after starting the engine, perform the following:

1. Check to make sure that the fluid oil level starts to decline, and then increase again.
2. Add traction oil from the beaker or small container, so that the traction oil tank level does not get empty. Also make sure that the Oil Tank does not overflow.

※ Engine stalling may occur right after reconnecting the cable to the battery. This is normal.

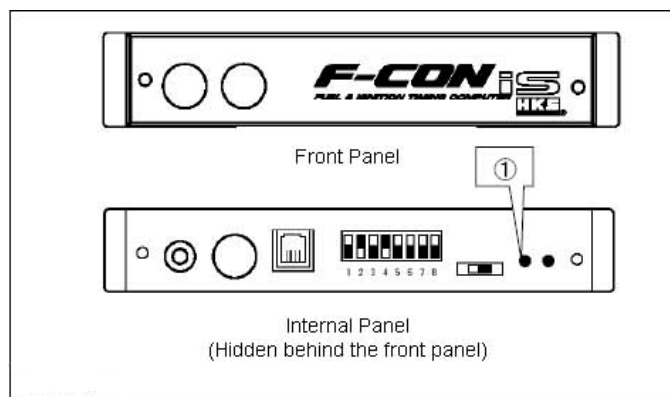
※ There may be some unusual or unpleasant noises emanating from the Supercharger Assembly after starting the engine. This is normal, and this noise will go away after the traction fluid warms up (approximately 2-3 minutes)

- Start the engine and perform the following checks after the engine reaches normal operating temperature:

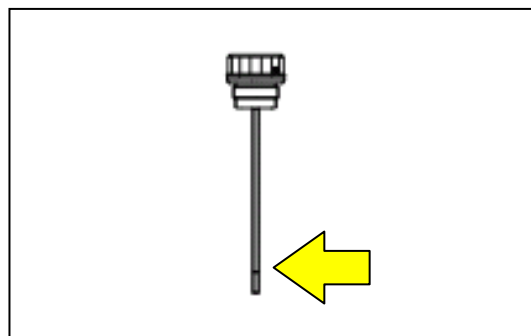
NOTE

Do not raise the engine RPM while the engine is warming up; let it idle.

	Items to confirm:	Check
1	Make sure the Traction Fluid returns to the Oil Tank.	
2	Make sure ① Power LED on the F-CON iS is ON. (See diagram below)	
3	Make sure there are no leaks in the fuel, Traction Fluid, coolant, or piping.	
4	Make sure there is no excessive stress on any harnesses, fuel lines or hoses.	
5	Make sure the installed parts do not come in contact with any other parts.	



- After verifying the above items, raise and keep the RPM stable at 2000RPM for 10 seconds. Immediately shut off the engine and check the Traction Fluid level. The level needs to be at level indicated in the diagram below. If it is lower, add Traction Fluid as necessary.



※ If there is excess Traction Fluid remaining in the bottle, replace the cap on the bottle and store in a safe location. Always store excess Traction Fluid in the original bottle.

- Put the traction oil tank cap back on.
- Bleed air out of engine coolant referring to the instruction on the tank.

17. BELT TENSION ADJUSTMENT

- After starting the engine, adjust the belt tension.

Measure the belt tension at the position indicated in the diagram on the right.

Tension Meter Settings

Span Length: 230mm

No. of Rig: 7

Belt SG: 0.0188g/rib (1m)

Tension : 960N



18. INSTALLTION OF AIR CLEANER DUCT

- Install the front engine side cover.



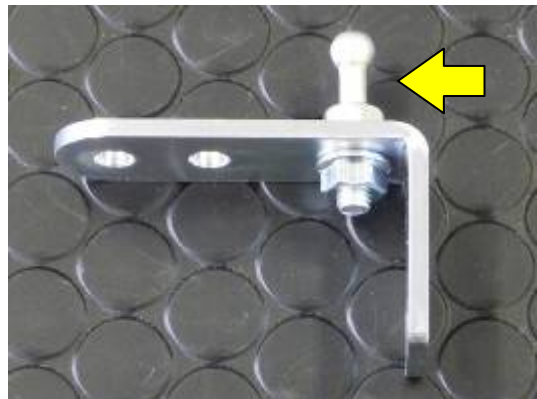
•Front Engine Side Cover



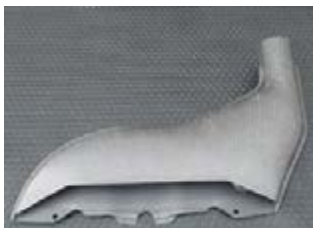
- Install the factory mounting bolt to the Engine Cover Bracket.



•Engine Cover Bracket
•Mounting Bolt (Reuse)
•Flange Nut M6



- Install the Engine Cover Bracket to the Air Cleaner Duct.



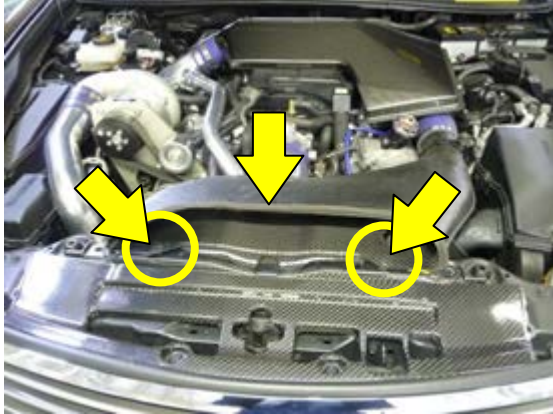
•Air Cleaner Duct
•Tie Wrap (L)
•Sponge Sheet 30x30x3 (Cut to half.)



Affix the sponge sheet to the duct side.
Install the bracket.

- Install the Air Cleaner Duct.

- Silicone Hose 80mm L=70.
- Hose Clamp #48
- Bolt M6 (Reuse 2 pcs.)



Secure the Silicone Hose 80mm on the duct side using Hose Clamp #48

- Reinstall three under covers.

19. CONFIRMATION AFTER INSTALLATION

- Lower the vehicle down.

NOTE

- When lowering the lift, air from the air suspension will leak so the vehicle height will be the lowest position. Make sure tires do not come in contact with the fenders when removing the vehicle from the lift. The vehicle height will return to the standard position after a few minutes.

- Set up the back guide monitor.

Procedure

1. Fully turn the steering wheel to the right.
2. Fully turn the steering wheel to the left.

When setup is completed, the projected route will appear on the back monitor.

- Bleed air from the engine coolant.
- Make sure the A/C heater works properly.
- Readjust the belt tension.

20. INSTALLATION OF E/G COVER & E/G SIDE COVERS.

○ Install the Engine Cover.



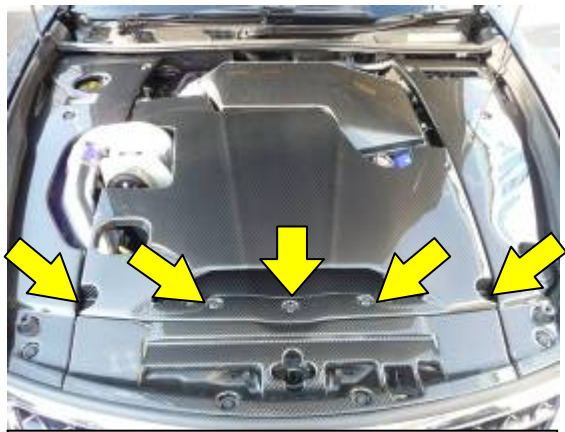
• Engine Cover
• Clip (Reuse) x 5



Install the mounting rubbers removed from the factory engine cover to back of the Engine Cover. (2 points)



Insert the mounting rubbers to the mounting bolts. Install the Engine Cover.



• Clip (Reuse x 5)

NOTE

- When removing the Engine Cover, lift the mounting rubbers instead of the engine cover itself to prevent the cover from being damaged.



- Install both left and right Engine Side Covers.



- Engine Side Cover (Left)
- Engine Side Cover (Right)
- Clip (Reuse) (8 pcs.)



The installation process is now complete.

21. ONE MONTH INSPECTION

- Within 40 days of installation, it is recommended to consult your installer/retailer for the following 1st month inspection:
- If there is no trouble found after the inspection, fill out the registration form to register.

Entry Method	No Problem	<input checked="" type="checkbox"/>	Exchange	×	Adjust	A	Tighten	T
-----------------	---------------	-------------------------------------	----------	---	--------	---	---------	---

	Inspection Item
	<p><u>Supercharger Unit Check</u></p> <div style="border: 2px solid black; padding: 5px; text-align: center; margin: 5px 0;"> <p>WARNING</p> <ul style="list-style-type: none"> • When checking operation of the unit, avoid touching any moving belts, even clothing. • Touching these moving belts can lead to severe injury and damage. </div> <p>1 Compare the operating sound currently against initial installation, check for increased sound levels or unusual noises. <input type="checkbox"/></p> <p>Compare the sound of the air cleaner against initial installation, check for increased intake sound levels or unusual noises. <input type="checkbox"/></p> <p>Check Traction Oil level for unusually high Traction Oil consumption. (Oil level surface is not touching the oil level gauge) <input type="checkbox"/></p>
2	<p><u>Traction Oil Piping Inspection</u></p> <p>Check for Traction Oil leaking from the piping, loose hose clamps of the following points. <input type="checkbox"/></p> <ul style="list-style-type: none"> • Connection point to the Supercharger <input type="checkbox"/> • Connection point to the oil cooler <input type="checkbox"/> • Connection point to the oil tank <input type="checkbox"/> • Connection point to the oil filter <input type="checkbox"/> <p>Signs of damage due to rubbing of the Traction Oil hose to other parts <input type="checkbox"/></p> <p>Cracks or breaks in the Traction Oil hose <input type="checkbox"/></p> <p>If Traction Oil filled to the marking level on the oil level gauge <input type="checkbox"/></p>
3	<p><u>Belt Inspection</u></p> <p>Check if belts (6PK2135) tension is within the Auto-tensioner's adjusting range <input type="checkbox"/></p> <p>Check if tension of belt 7PK1030 960N is adjusted to the specified tension <input type="checkbox"/></p> <p>Cracks or breaks in the belts. <input type="checkbox"/></p>
4	<p><u>Bolt Tightening</u></p> <p>Check if Supercharger Assy mounting bolt is tightened <input type="checkbox"/></p> <p>Check if pulley mounting bolts are properly tightened <input type="checkbox"/></p>
5	<p><u>Other</u></p> <p>Check if any harnesses are interfering with other parts Locations:</p> <ul style="list-style-type: none"> • Pressure Sensor Harness <input type="checkbox"/> • F-CON Harness <input type="checkbox"/> <p>Check all mounted parts for interference with other parts Locations:</p> <ul style="list-style-type: none"> • Intercooler Inlet Pipe No.1 & Relay Box Harness <input type="checkbox"/> • Blow-off Valve Pipe & Water Pump Pulley Bracket Bolt (Cap Bolt M10) <input type="checkbox"/> • Intercooler Outlet Pipe No.4 & Electric Fan Harness <input type="checkbox"/> • Intercooler Outlet Pipe No.4 & Reservoir Tank Pipe <input type="checkbox"/> <p>Check if hose clamps are properly tightened <input type="checkbox"/></p> <p>Check if engine oil level is between H-L <input type="checkbox"/></p>

22. MAINTENANCE

- Traction Oil is used specifically for the HKS GT Supercharger. Do not use other types of oils; use of other brands of Traction Oil, engine oil, or transmission oil can lead to damage to the HKS GT Supercharger internals.



CAUTION

• Traction Oil does not need to be replaced, however check oil level prior to driving. If oil level is low, add Traction Oil as necessary.

- Use the part number below to order Traction Oil.

Product Name	Part Number
Traction Fluid	12002-AK029

- Replace the Traction Oil Filter every 5 years or 70,000km after installing the HKS GT Supercharger.
 - Use the part number below to order the Traction Oil Filter.

Product Name	Part Number
Traction Fluid Filter	12002-AK015

- Belts are consumable parts. Always check belts prior to driving for any cracks or tears. Replace damaged belts immediately.
 - Use the part number below to order the Ribbed Belt.

Product Name	Part Number
Belt 7PK1030	G13572-T63010-00
Belt 6PK2135	G13572-T63020-00

23. TROUBLESHOOTING

Symptom	Cause	Measurements
<ul style="list-style-type: none"> • The Power LED of the F-CON iS does not light up when the Ignition Key is in ON position. • Engine does not start. • Engine unstable. 	Bad connection	<ul style="list-style-type: none"> • Make sure each connector is snapped securely in place.
<ul style="list-style-type: none"> • Belt squeals when engine starts. • Engine output feels weak. • At full throttle the boost starts to reduce at a certain RPM while engine RPM is increasing. 	Low belt tension	<ul style="list-style-type: none"> • Make sure the Auto-Tensioner's adjustment range is still remaining. If not, replace with a brand new belt. • Check for any cracks or tears on the belt. Replace damaged belts immediately.
<ul style="list-style-type: none"> • Engine output feels weak. • At full throttle the boost starts to reduce at a certain RPM while engine RPM is increasing. 	Air filter worn out	<ul style="list-style-type: none"> • Replace the filter element. • If HKS Hybrid Filter was used for more than 10,000km, replace the filter element. (Replace the element even it's used less than 10,000km depending on the filter condition.)
<ul style="list-style-type: none"> • Automatic transmission does not shift properly. 	Bad connection Ground failure	<ul style="list-style-type: none"> • Make sure each connector is snapped securely in place. • Make sure the black spade terminal of F-CON+VAC Harness is connected to ground properly.
	Changing the final gear.	<ul style="list-style-type: none"> • If the final gear was replaced with a non-factory gear, shift shock or shift delay may occur since the AT control and engine control do not match. Remove the non-factory gear and reinstall the factory final gear.
<ul style="list-style-type: none"> • Belt squeals when revving the engine to higher RPM at neutral. 	※This symptom does not have to show abnormal condition.	<ul style="list-style-type: none"> • Unless the boost starts to reduce at a certain RPM while engine RPM is increasing, it does not show abnormal conditions. • The belt tends to slip when revving the engine at neutral; especially when the engine is not warmed up since the belt tension is low.

24. IF BELT BREAKS

- Park the vehicle in a safe place to check if the car is still drivable. Check for any damage caused by the torn belt such as oil leak, coolant leak, damaged harness, and etc.
- Do not drive the vehicle if the belt 6PK2135 is damaged since the water pump is operated by the belt.
- Move the vehicle to a safe place and replace the belt with a brand new one. Repair any problems that may have caused the belt to break.