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NMTI2017QX30-ILT

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2017 Infiniti QX30 New Model Training Technician Workbook

CREATED JUNE, 2016

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This book is designed for instructional use only for authorized Nissan North America, Inc. and Nissan dealer personnel. For additional information contact:

Nissan North America, Inc.
Product, Service, and Technical Training
P.O. Box 685001
Franklin, TN 37068

Nissan North America, Inc.
Product, Service, and Technical Training Department

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Sign-off sheet
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Module 3: Energy Management System
Module 4: DCT Fluid Level Check
Module 5: Restraint System
Module 6: AWD Familiarization
Module 7: QX30 Intelligent Key Entry System
Module 8: DAS and Front Camera Familiarization
Module 9: Brake Service
Module 10: Tire Pressure Monitoring

SECTION 3: Notes

COURSE OBJECTIVES

Upon completion of this training program, given a 2017 Infiniti QX30, you will be able to:

- Explain the function and operation of the features and controls of the 2017 Infiniti QX30.
- Explain the CAN architecture and CAN Potential Distributor Electrical Connector function.
- Identify the components used by the energy management system and their functions.
- Correctly perform transaxle fluid level inspection, interpret the results, and determine if the level should be adjusted.
- Identify additional service required after replacing the Air Bag Diagnosis Sensor and the Occupant Classification System control unit.
- Monitor system functions of the AWD system using CONSULT, and identify additional
  service when replacing the control unit or components.
- Identify the various components of the Intelligent Key Entry System, their functions, locations, and special service requirements.
- Explain the function and service requirements of the front camera unit.
- Explain the operation of the electronic parking brake and unique service brake features.
- Explain the operation of the TPMS system, reset the TPMS reference pressure values, identify the ID numbers for each tire pressure sensor, and write the ID numbers to the low tire pressure warning control unit.
- Use CONSULT to check components and monitor the operation of the Evaporative Emissions System (EVAP).

COURSE PROCEDURES:
2017 INFINITI QX30 NEW MODEL TRAINING

Infiniti Competency Based Training:

Class starts promptly at 9:00 AM. Please be in your seat and ready to begin at 9:00 AM. Silence your cell phone.

Class ends when all the modules on your Course Sign Off sheet are initialed by the instructor. Nissan and Infiniti design courses so that most technicians should be able to complete the modules in the time provided for the course.

Experienced technicians should be able to complete all the modules in the two days scheduled for the class. If you are unable to complete the course requirements in the time provided, the instructor will discuss options available for you to receive course credit. You are responsible for learning how to perform the diagnostic procedures featured in this course. It is important that you take as much time as you need to learn the skills presented in the course worksheets. If you cannot complete the modules in the time provided, the instructor will work with you and your dealership to help you complete the course.

Text:

The text contains information relating the features and technology found on the 2017 Infiniti QX30. Some of the questions in the worksheets can be answered using the text. You will not have the opportunity to read the text thoroughly during this class, so please save the text as a resource to answer questions about the technology and systems unique to this vehicle.

Modules:

1. Begin the module by reading the Objective, Relevance, Resources, and Skill Check information on the first page.
2. Contact the instructor if you cannot locate the resources or if the vehicle has a problem that seems unrelated to the module. (ie: dead battery)
3. You will probably be working with one or more technicians. Follow these basic guidelines to work effectively as a team:
   - Take responsibility to understand and perform each step of the worksheet yourself.
   - If using CONSULT-III + or other tools, be sure to check on-screen results yourself and hand the tool to the other technician(s) so they can also confirm test results.
   - If you are expected to test a component or remove and inspect parts, perform those procedures yourself and give the same opportunity to your co-workers.
   - Be patient. Everyone works at different speeds. You are responsible to perform each module objective – and you are responsible to insure the technician(s) working with you have also completed the 'Skill Check'.

- Complete all the questions on the worksheet. In some cases, the worksheet may give you the opportunity to skip steps, for example – you may not need to follow instructions for booting CONSULT-III + if you are already confident using the tool. If your co-workers wish to complete those instructions, be patient as they complete those steps.
- Treat the training center vehicles as if they were customers' cars. However, if you damage anything while performing the module, tell the instructor right away. Some components such as trim pieces or wire connections may break during testing. We expect these occasional problems and need to know about them as soon as they occur.
- Return the vehicle to the condition it should be in for the next team of technicians to complete the module. For example: Reset bugs if applicable, return tools to the bench or tool box, and straighten up the work area.
- Contact the instructor when you have completed the module and are confident you can perform the 'Skill Check' noted on the first page. Expect the instructor to review your worksheet and confirm that you have completed the objective. Tell the instructor if you feel you need more practice. If possible, the instructor will provide you with additional information or give you the opportunity to work on the vehicle later in the day.

Resources:

Resources may include ASIST, CONSULT-III +, the ESM, Special Service Tools (SST), hand tools, DVOMs, and vehicle parts. If the ASIST terminal is not working properly or is not updated, contact the instructor.

Monitor the battery power for CONSULT-III + and connect it to the charger as needed. For this course we expect you to be comfortable using CONSULT-III + for testing the CAN system and for accessing Self Diagnosis, Data Monitor, Active Test, and Work Support. Contact the instructor if you are not familiar with using these applications.

Contact the instructor if you have questions about using the listed resources or there is a problem with any of the resources you will need to complete the module.

PowerPoint Notes:

The PowerPoint slides are reprinted in your Technician Workbook. Refer to the Notes section of the book to follow the classroom discussion. The classroom discussion highlights information you will practice during workshop modules. Make notes and ask questions during the discussion and you will learn information that will help you complete the worksheet objectives.

Technician Creed and Code of Repair

This vehicle is the personal property of the customer.

The customer's desire is: I correctly service / repair their vehicle today.

My desire is: He / She returns to my place of business for additional service and repairs unrelated to today's visit.

It is my choice regarding the quality of repair I make today.

I will do all I can to gain the customer's trust while servicing and repairing their vehicle.

NISSAN

ATTITUDE IS EVERYTHING!

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TEXT

QX30 New Model Training

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Introduction

Infiniti revealed its QX30 active compact during its press conference at the 2015 Frankfurt Motor Show. Representing Infiniti's first entry into the fast-growing premium compact segment, the QX30 will play an important role in helping the company realize its plans for global growth.

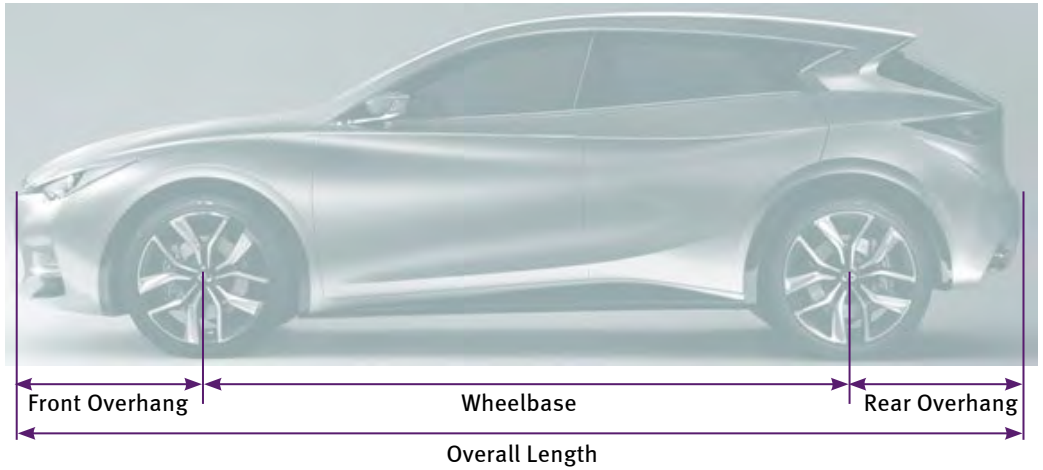
The QX30 challenges convention with its bold character and daring shape and stays true to the signature design cues from the original 2013 concept. QX30 offers exceptional ride and handling thanks to the versatile dimensions, confident dynamics and intuitive technologies.

In November 2015 the QX30 AWD premium active crossover made its simultaneous global debut at the 2015 Los Angeles and Guangzhou international motor shows. QX30 AWD offers an elevated ride height, confidence-inspiring handling, a 'go-anywhere' attitude and comes available with an intelligent all-wheel drive system.

Training documentation is for learning purposes only. Always refer to the service manual for the most up to date information.

General Information

Vehicle Dimensions



	Length	Width	Height	Front Overhang	Wheelbase	Rear Overhang	Ground Clearance
QX30 Base/Premium	174.21	82.01	59.45	35.98	106.3	32.01	6.77
QX30 Sport	174.21	82.01	58.03	35.98	106.3	32.01	6.10
QX30 AWD	174.21	82.01	60.24	35.98	106.3	32.01	7.95

All dimensions expressed in inches.

Model Variation

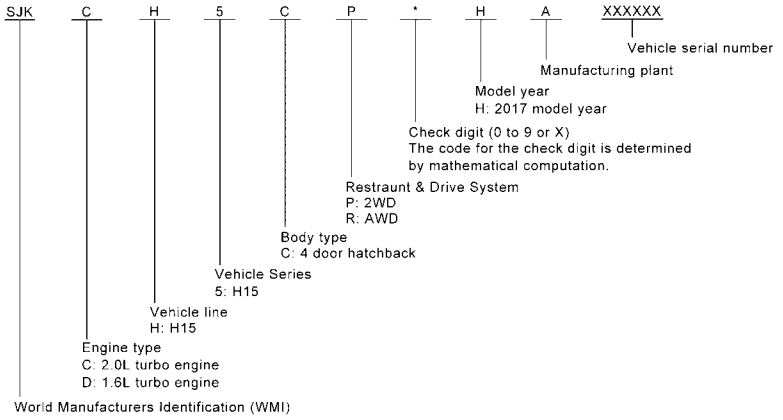
FWD MODELS

Destination	Body	Engine	Axle	Handle	Transmission	Grade	Model
USA	4 door hatchback	2.0L turbo engine	2WD	LHD	7DCT	Base	DEBALPL-UUA
						Leather	DEBALQL-UUA
						Premium	DEBALRL-UUA
						Sport	DEBALTL-UUA
Canada						Base	DEBALPL-UUA
						Leather	DEBALQL-UNA
						Premium	DEBALRL-UNA
						Sport	DEBALTL-UNA
Mexico		1.6L turbo engine				Base	DECALPL-UJH
		2.0L turbo engine				Premium	DEBALRL-UJA
						Sport	DEBALTL-UJA

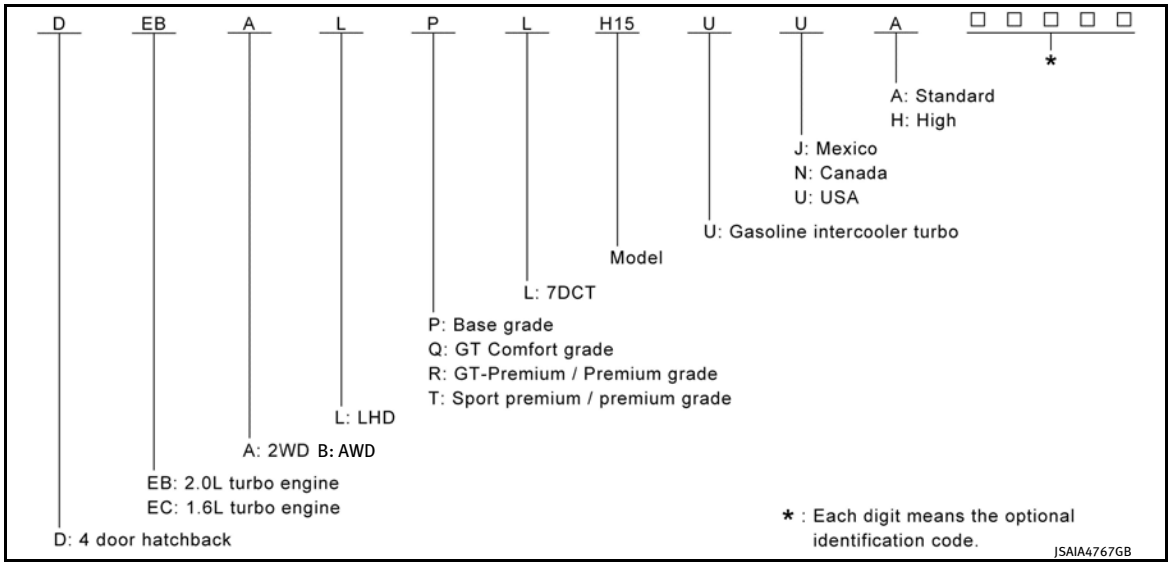
AWD MODELS

Destination	Body	Engine	Axle	Handle	Transmission	Grade	Model
USA	4 door hatchback	2.0L turbo engine	AWD	LHD	7DCT	Base	DEBNLXL-UUA
						Premium	DEBNLYL-UUA
Canada						Base	DEBNLXL-UNA
						Premium	DEBNLYL-UNA

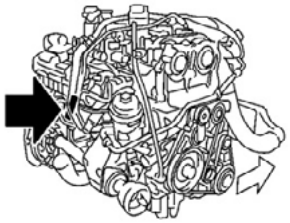
VEHICLE IDENTIFICATION NUMBER ARRANGEMENT



SIS Code (Infiniti Model Variation Code)

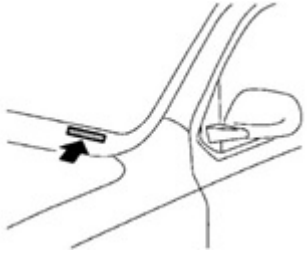


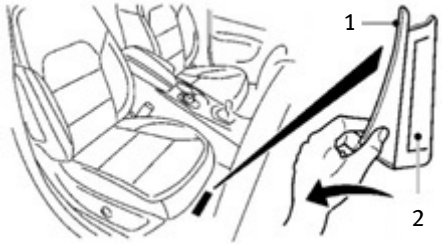
Engine Codes



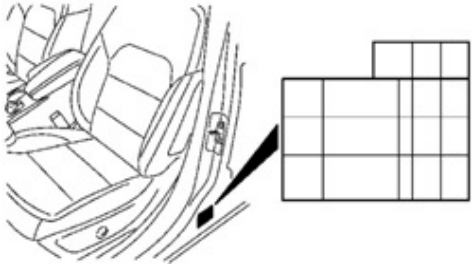
1.6L and 2.0L Turbo

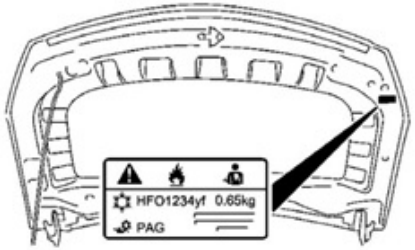
VIN Locations



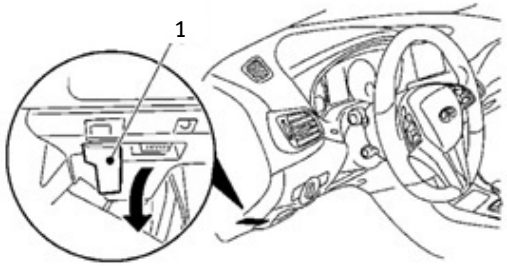


Data Stickers

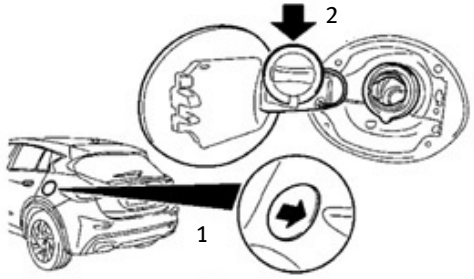




Access Points

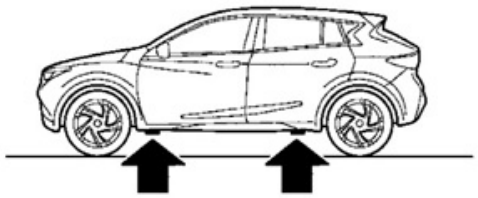


Hood Release and Data Link Connector



Fuel Door Release

Jacking Points



Front

Rear

Fuel Requirements

Unleaded premium fuel (minimum 91 AKI/95 RON).
Unleaded regular fuel (minimum 89 AKI/91 RON) can be used temporarily with the following limitations:

- Have the fuel tank filled only partially with unleaded regular, and fill up with unleaded premium as soon as possible.
- Avoid full throttle driving and abrupt acceleration.

Use unleaded premium for maximum vehicle performance.

Battery Charging

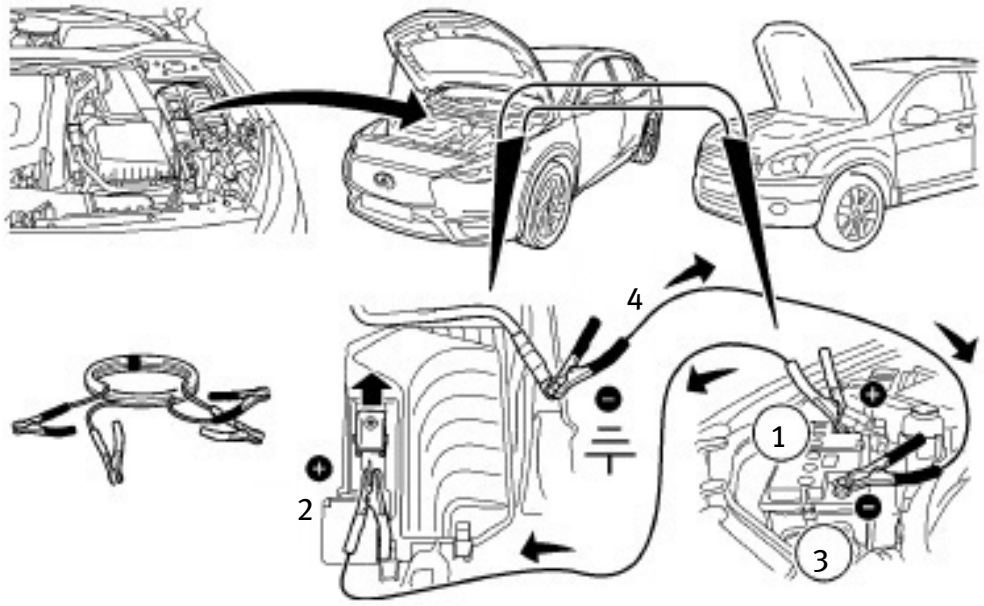
Current draw with the ignition on can reach in excess of 35 amps, and a conventional battery charger may not be sufficient to handle the energy requirements. When working on the vehicle with the ignition on/engine, off it is recommended that a battery charger capable of supplying up to 50 amps of current should be connected to the main vehicle battery.

Mainand Auxiliary Battery Replacement

QX30 uses VRLA (valve-regulated lead-acid) batteries with AGM (absorbed glass mat) technology in support of the stop/start function.
Do not use any other type of battery, as this may cause early deterioration of the battery or a malfunction of the stop/start system.

Jump Start Procedure

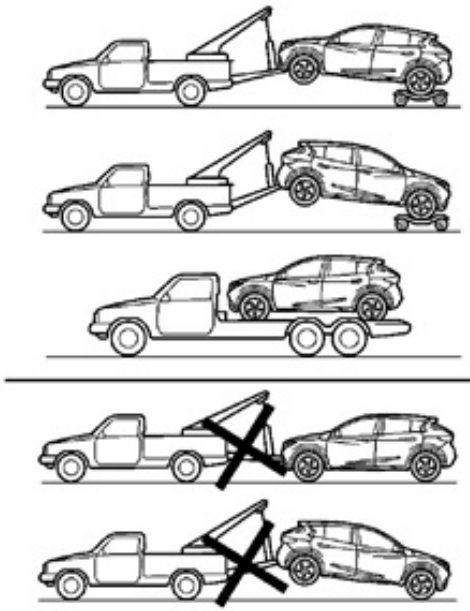
In the unlikely event of excessive battery discharge or failure, connect the jump start cables in the sequence shown. Disconnect in reverse order when safe to do so.



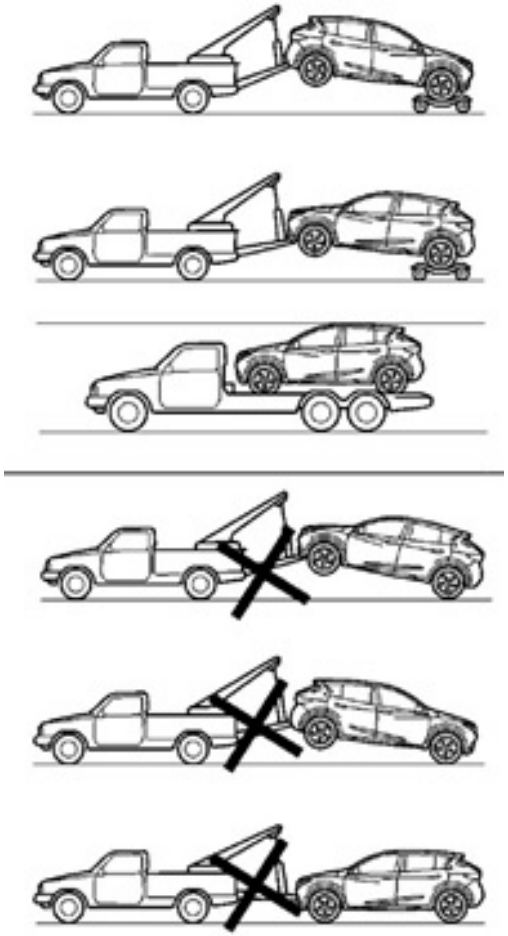
Towing

Towing methods are as follows:

Front Wheel Drive



All-wheel Drive



PDI, Service and Maintenance

Pre-delivery Inspection

Carry out the pre-delivery inspection according to the PDI document found in the vehicle packet and guidelines outlined in the Infiniti Assurance Products Resource Manual (APRM). QX30 specific points are as follows:

- No transport mode release process is required.
- Check vehicle is set to default settings or customer preferences via the combination meter display menu and CONSULT-III plus.
- Check and adjust tire pressures and then manually reset the TPMS benchmark monitoring pressure via the steering wheel controls and the vehicle information display menu to ensure correct TPMS operation.
- Observe vehicle battery maintenance and test procedures in line with the APRM.
- SIR volumes 183 and 184 provide details on performing proper PDI.

Service Reminder

Reset the service reminder using the following methods.

With CONSULT-III plus:

1. Open METER/M&A and select Active Test.
2. Select Confirmation of General Maintenance if you wish to see the remaining time between services.
3. Select Reset General Maintenance once a service has been completed on the vehicle.

Without CONSULT-III plus (for PDI only):

1. Ensure the ignition key is set to the accessory position 1 and trip information is displayed on the instrument panel vehicle information display.
2. Press and hold the steering wheel RH phone button followed by the LH OK button simultaneously for five seconds until the service and self diagnosis hidden screen appears.
3. Scroll through the sub menu options and select Maintenance to obtain service related data and reset the service interval.

NOTE: If the odometer reads below 155 miles the service reminder can be set in the information display as at PDI. CONSULT must be used to reset service reminder at odometer readings above 155 miles

When resetting the service interval via the vehicle information display, you must select the correct oil type for the engine fitted to the vehicle.

Engine oil code for 2.0L: 229.5

Service and Maintenance

Abbreviations: I = Inspect and correct or replace as necessary, R = Replace

MAINTENANCE OPERATION	MAINTENANCE INTERVAL												
Perform at number of miles, kilometers or months, whichever comes first.	miles x 1,000	5	10	15	20	25	30	35	40	45	50	55	60
	(km x 1,000)	(8)	(16)	(24)	(32)	(40)	(48)	(56)	(64)	(72)	(80)	(88)	(96)
	months	6	12	18	24	30	36	42	48	54	60	66	72
Engine compartment	See NOTE (1)												
V-belt	See NOTE (2)				I*				I*				I*
Air cleaner filter	Replace every 155,000 miles or 180 months												
Fuel lines	Replace every 45,000 miles or 48 months				I*				I*				I*
Fuel filter	See NOTE (3)												
Engine coolant*	Replace every 155,000 miles or 180 months												
Engine oil			R		R		**R**		R				
Engine oil filter			R		R		**R**		R				
Spark plugs	Replace every 45,000 miles or 48 months												
Brake lines and cables			I		I		**I**		I				
Brake pads and rotors*			I		I		**I**		I				
Brake fluid *					R				R				R
Automatic transmission fluid					I				I				I
Automatic transmission fluid and filter	Replace every 60,000 miles or 60 months												
Differential gear oil			I		I		**I**		I				
Steering gear and linkage, axle and suspension parts*					I				I				I
Tire rotation	See NOTE (1)												
Propeller shaft & drive shaft boots (AWD models)*			I		I		**I**		I				
Exhaust system*					I				I				I
In-cabin microfilter					R				R				R
I-key battery				R			R			R			R

Please refer to the current QX30 service and maintenance guide for proper maintenance intervals.

Fluid Specifications

The following recommended lubricant, coolant, fluid specification and quantities are an extract from the owners manual. Always consult the latest service manual and service information for the most current data.

The following are approximate capacities. The actual refill quantities may be slightly different. When refilling, follow the procedures instructed in the "8. Maintenance and do-it-yourself" section of the owner's manual to determine the proper refill capacity.

Fluid types	Capacity (Approximate)			Recommended Fluids and Lubricants
	US measure	Imp Measure	Liter	
Fuel tank	13.2 gal (AWD: 14.8 gal	11 gal (AWD: 12.3 gal)	50 L (AWD: 56 L)	– See "Fuel recommendation" later in this section.
Engine oil (*) Drain and refill With oil filter change	6 qt	5 qt	5.6 L	The approximate capacities listed are for refilling during an engine oil change. *: For additional information, see "Changing engine oil" in the "8. Maintenance and do-it-yourself" section. 2.0L gasoline engine: – Genuine INFINITI engine oil, Viscosity SAE 0W-30 For additional information, see "Engine oil and oil filter recommendations" later in this section.
Cooling system with Reservoir	8.1 qt	6.7 qt	7.6	– Genuine INFINITI Engine Coolant or equivalent in its quality BASF Glysantin® G40® – Use Genuine INFINITI Engine Coolant, or equivalent in its quality, in order to avoid possible aluminum corrosion within the engine cooling system caused by the use of non-genuine engine coolant. **Note that any repairs for incidents with the engine cooling system while using non-genuine engine coolant may not be covered by the warranty even if such incidents occurred during the warranty period.**
Automatic Transmission Fluid (ATF)	6.6 qt	5.5 qt	6.21 L	– Shell DCT-M1
Brake fluid	Refill to the proper fluid level according to the instructions in the "8. Maintenance and do-it-yourself" section.			– Genuine INFINITI brake fluid or equivalent. DOT 4+ – Never mix different types of fluids.
Differential gear oil	0.8 qt	0.65 qt	0.74 L	– Castrol BOT 355 75W-85
Multi-purpose grease	—	—	—	– NLGI No. 2 (Lithium soap base)
Air conditioner system refrigerant	—	—	—	– HFC-134a
Air conditioner system lubricant	—	—	—	– INFINITI A/C System Oil Type S (PAG) or equivalent

Coolant Draining

The coolant draining port is located to the radiator right side.

The draining procedure is as follows:

1. Remove the retaining clips and bolts on the engine front under cover.
2. Remove the lower fender protector (R/H).
3. Remove the front suspension member attachment.
4. Attach the drain hose to the drain port fitting.

For the long life coolant, always use Genuine Infiniti Engine Coolant or equivalent. The recommended mixture rate is 50%.

Maintenance interval: Every 155,000 miles or 120 months (refer to the appropriate service manual or service and maintenance guide).

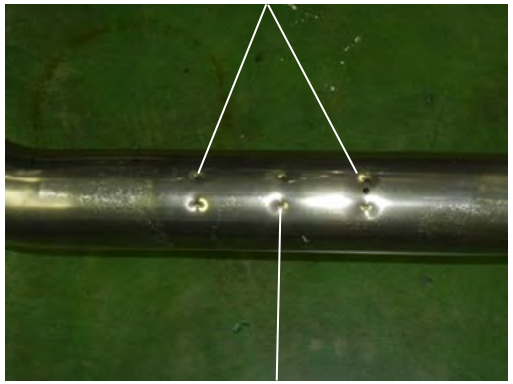
Exhaust Pipe Repair

The front and rear of the exhaust pipe can each be repaired by cutting the pipe. Set up the pipe clamp beforehand and use a commercial cutting tool.

Commercial tool

When attaching the pipe, match the pipe markings and the edge of the pipe clamp. Refer to the appropriate service manual for details.

Coupling edge point



Cutting point

Programming and Configuration Processes

When Q50 was launched, the process was introduced of supplying blank ECUs for the engine control module (ECM) and transmission control module (TCM). This practice has been continued with QX30 and also extended to include the air bag control module.

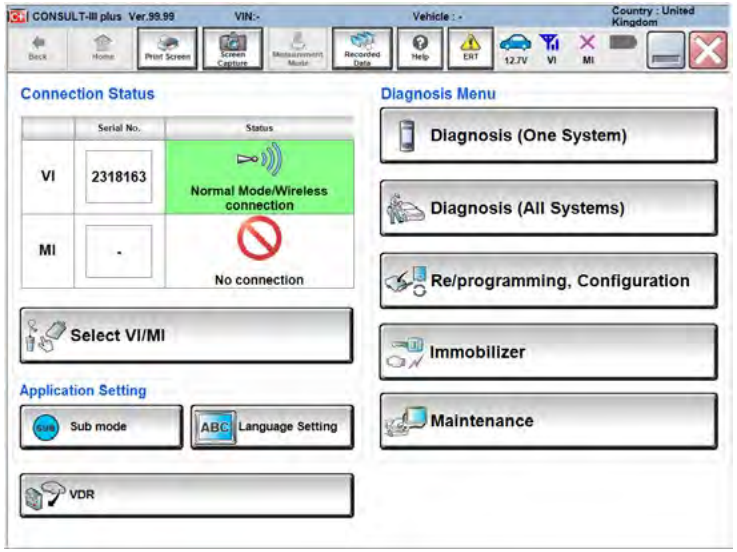
The process of configuring ECUs has also changed with QX30 and applies to over 30 ECUs. Instead of reading data from the previous ECU and then rewriting to the new component, there is no read process. Configuration is carried out using an online process through CONSULT-III plus.

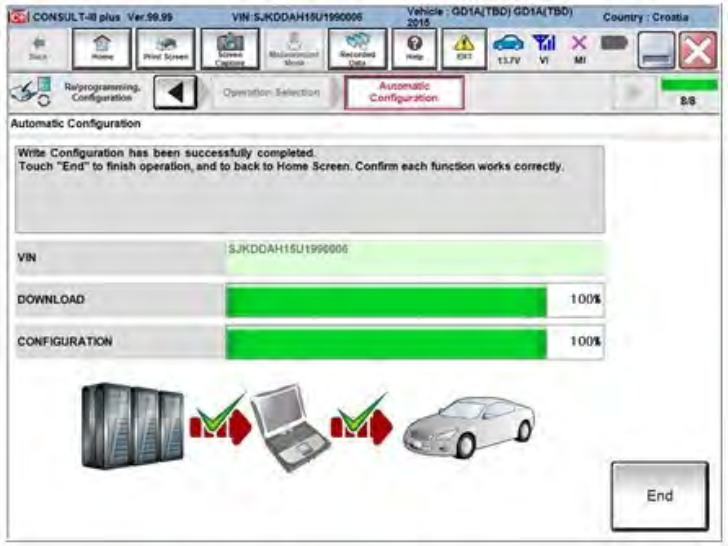
A new process has also been introduced for immobilizer and key coding.

All of these processes are supported in the revised CONSULT-III plus operating manual.

The following service points should be noted:

- CONSULT-III version CF-19 or later is requred, with software version 53.2 or later.
- Windows 7 operating system
- The vehicle battery must be fully charged with a battery charger attached.
- Ignore the vehicle battery voltage displayed on CONSULT-III plus.
- A strong dealer wireless network (WiFi) connection is required.
- Verify the sub-mode channel setting from the home page of CONSULT-III plus is set to Infiniti.
- Make sure your login details are available, with the correct level of access (only required for certain market areas).
- CONSULT-III plus will prompt when programming or configuration is required.
- Always refer to the CONSULT-III plus operating manual for set up details.
- Switch off sleep modes on CONSULT-III plus, if active.
- Follow instructions precisely.
- The screen might pause during the process; it will continue when ready.
- Make sure the process is not interrupted.





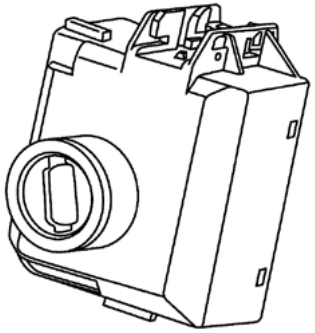
Electric and Power Control

Body Control Module

The body control module (BCM) controls body-related electrical systems and components, including the following:

- Central locking system
- Power window control system
- Headlamp system
- Auto light system
- High beam assist system
- Daytime running light system
- Active adaptive front lighting system
- Turn signal and hazard warning lamp system
- Parking, position, license plate and tail lamp system
- Back-up lamp system
- Stop lamp system
- Front fog lamp system
- Headlamp aiming control system
- Interior room lamp control system
- Interior room lamp battery saver
- Illumination control unit
- Front wiper and washer system
- Rear wiper and washer system
- Spray nozzle hose heater system
- Energy management system

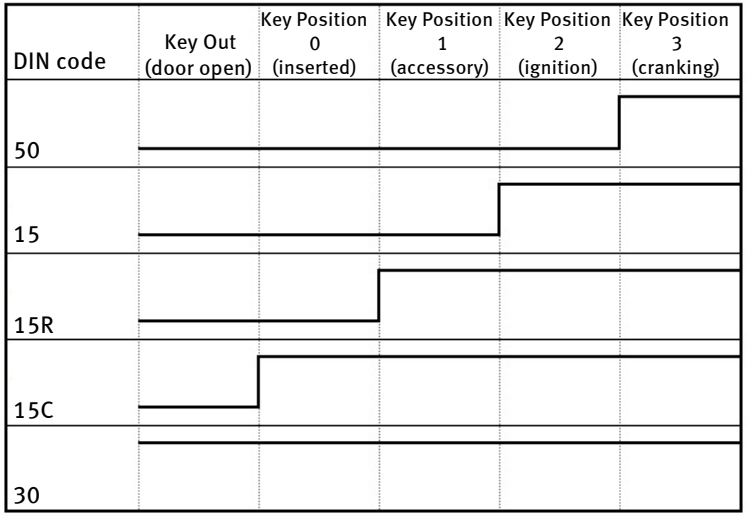
Electronic Ignition Switch



The electronic ignition switch (EIS) is central to the operation of the vehicle and without it the vehicle is completely disabled.
Main responsibilities include:

- Vehicle immobilization
- Gateway to the vehicle's CAN architecture
- Supply of ignition and battery voltage

The diagram below shows EIS position supply voltages.



Batteries and Alternator

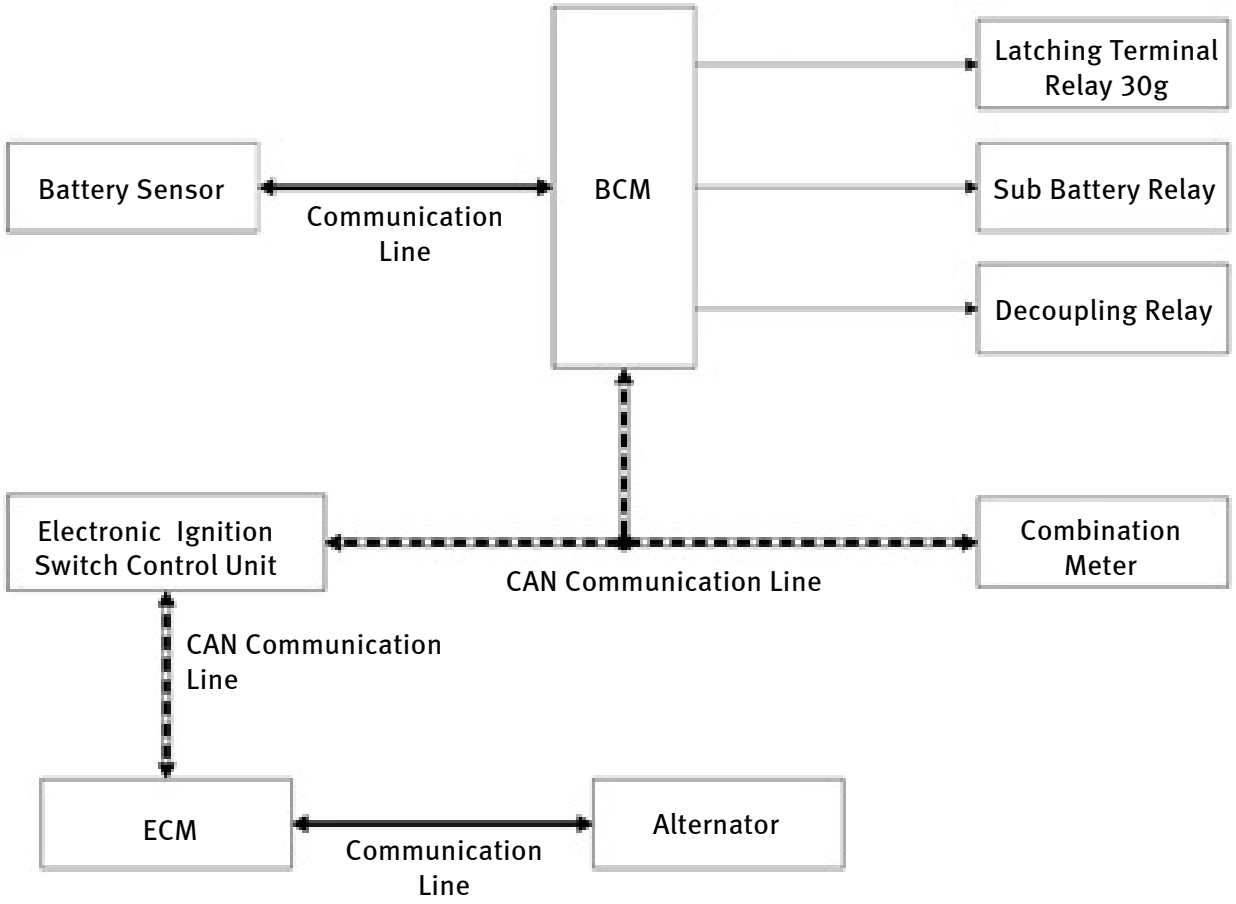
The on-board electrical system battery is located at the left rear of the engine compartment when viewed in the direction of travel.
An additional stop/start battery is installed in the front passenger footwell. The additional battery has a capacity of 12 Ah and prevents a voltage dip when the engine is started during the idle stop/start function.

Engine	On-board Electrical System Battery	Alternator
1.6L & 2.0L Engines	70 Ah	150 A

Energy Management System

The energy management system manages the provision (supply) and consumption (usage) of electrical energy to ensure mobility and a stable electrical consumer supply.
Functions are as follows:

- Engine ON energy management
- Engine OFF energy management
- Start/stop energy management



Engine ON Energy Management

The engine ON energy management function ensures the stability of the on-board electrical system as well as an even charge balance in the battery. Because the power output of the alternator is dependent on engine speed and temperature, plus the fact that many consumers are in use simultaneously, overload situations can arise that need to be buffered by the battery.

When such an overload situation lasts for an extended period or when the charging capacity of the battery is low, a negative charge/discharge ratio may result that could impair the engine's starting capability.

In situations where the on-board electrical system is overloaded for prolonged periods, engine ON energy management works to increase the power output of the alternator and also reduces the consumers in order to balance the charge/ discharge ratio of the battery.

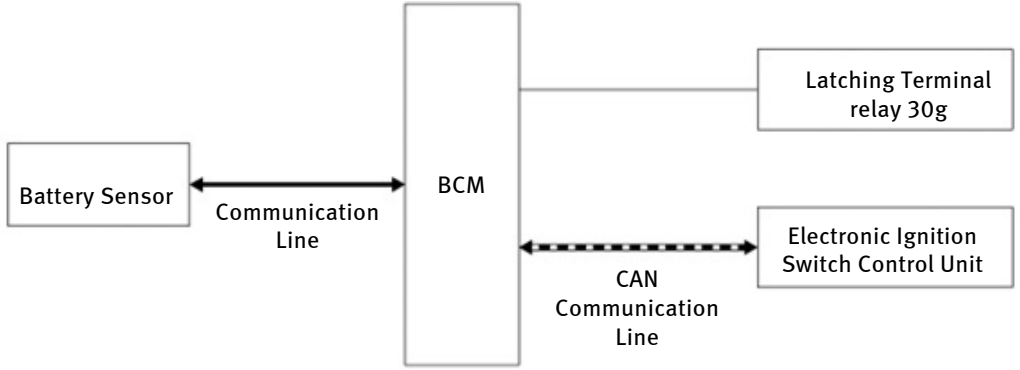
Engine OFF Energy Management

The engine OFF energy management function safeguards the stability of the on-board electrical system when the vehicle is at idle stop. The functionality is integrated in the BCM and serves to preserve the available voltage/amperage of the main battery.

The vehicle is deemed to be electrically dormant 75 minutes after ignition OFF. At 90 minutes, the BCM requests a battery voltage/current/temperature reading from the battery sensor and continues to do so every 15 minutes thereafter.

If a current draw significantly over 50 milliamps is detected, any remaining consumers may be switched off by the BCM activating the (battery switched) 30g relay.

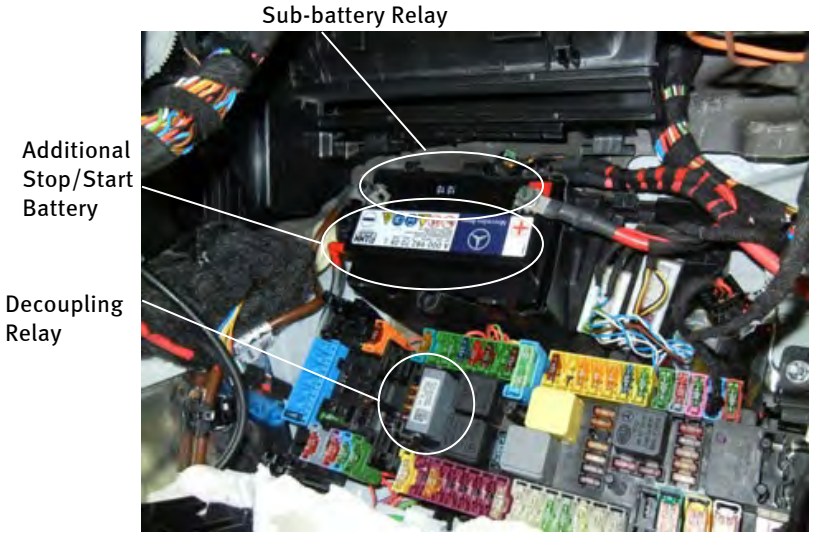
The 30g relay is switched off six hours after ignition OFF. Door handle capacitors stay charged for a minimum of 72 hours.



Latching Terminal Relay 30g

Stop/Start Energy Management

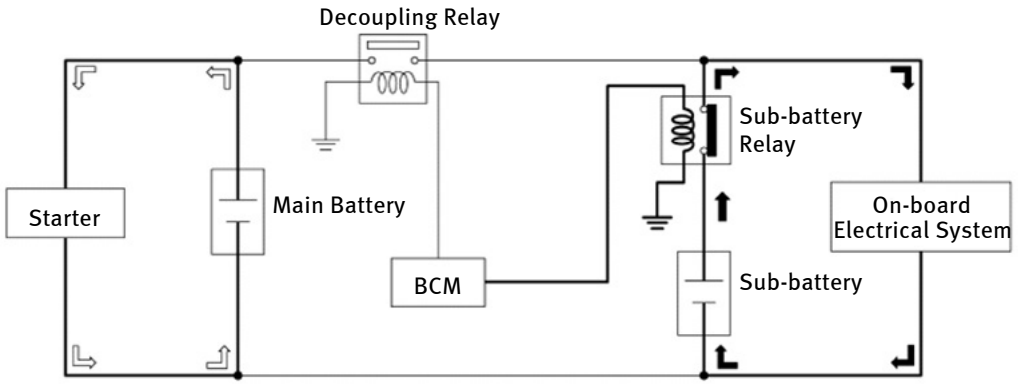
The ECM continuously assesses the stop/start system conditions. When the requirements are fulfilled, the idle stop/start function is enabled. When the vehicle comes to rest, the ECM evaluates all relevant data, transmits a stop enable signal, and stops the engine. The ECM also communicates an engine OFF signal to the BCM via CAN to prevent the initiation of the energy OFF management function. The driver is notified the function is active at engine shut off by the stop/start symbol in the combination meter.



Stop/Start Cycle

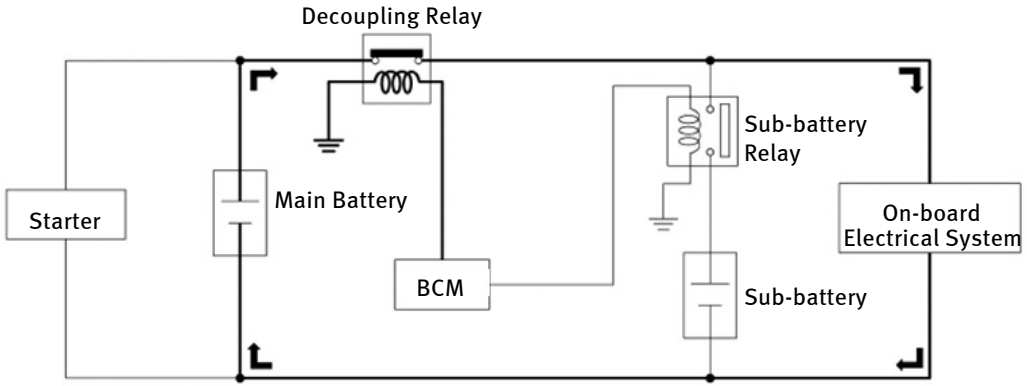
The main battery supplies the on-board electrical system while the engine is at rest in a stop/start cycle. When the engine is restarted, the decoupling relay is temporarily de-energized isolating the main battery from the on-board electrical system for the duration of the starting process.

At this point the sub-battery relay is also energized and the energy requirement of the on-board electrical system is solely covered by the sub-battery. The main battery is then used solely to supply the energy required for the engine starting process.



When an engine speed of 400 to 700 rpm is detected, the ECM terminates the start procedure and transmits the engine running signal to BCM via CAN. The BCM re-energizes the decoupling relay and de-energizes the sub-battery relay. The decoupling relay reconnects the main battery to the on-board electrical system.

The energy requirement of the on-board electrical system is now supplied again by the main battery.



Network Architecture

Network Overview

The ever-increasing demands on the on-board electronic systems in the fields of vehicle safety, comfort, communications, and diagnosis require wider and wider networking of vehicle systems to allow the necessary information to be exchanged.

On QX30, many different networks are in use, making this the most complex Infiniti vehicle to date.

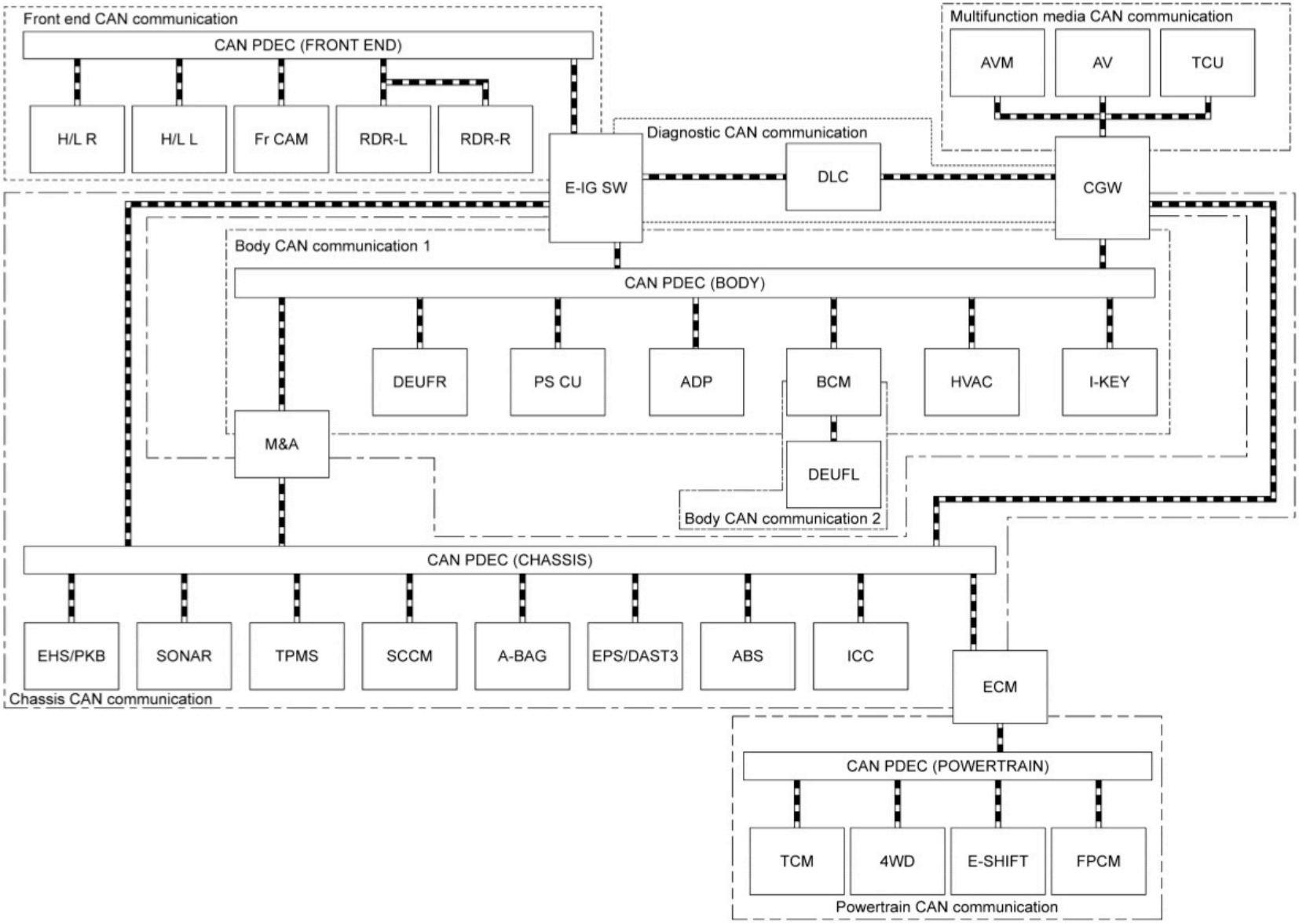
The use of various network speeds combined with different manufacturer CAN and LIN types has necessitated the use of an increased number of gateway control units. This ensures an unrestricted flow of information.

The following data bus systems and speeds are used on QX30:

System	Transfer rate
Body CAN 1	125 kb/s
Body CAN 2	125 kb/s
Multimedia CAN	125 kb/s
Diagnostic CAN	500 kb/s
Powertrain CAN	500 kb/s
Front End CAN	500 kb/s
Chassis CAN	500 kb/s
LIN	22 KB/s

Topology

The diagram and module list on the following page show engineering development information for QX30. The terminology and structure will differ slightly from the final information found on the vehicle and in the service manual, but will give an overview of the structure and complexity of QX30 network architecture. NOTE: THIS DEPICTION COVERS ALL POSSIBLE NETWORKS USED FOR QX30 GLOBALLY.



Note: Graphic displays all possible BUS configurations available. Some systems may not be available for your market area.

Abbreviation	Meaning
ALA	Adaptive Light Actuator
AM	Antenna Module
ANC/ASC	Sound Control Module
APSS	Active Pedestrian Safety System
AQS	Air Quality Sensor
ASBM U	Upper Accessory Switchbank Module
AVM	Around View Monitor
AWD	All-wheel Drive
BCM	Body Control Module
BR	Blower Regulator
CEPC	Central Powertrain Regulator
CLA	Curve Light Actuator
CPC	Common Powertrain Controller
DCT	Dual Clutch Transmission
DMFL	Door Module Front Left
DMFR	Door Module Front Right
DSI	Direct Select Interface
DSM MS	Door Switch Module/Memory Seat
DSM WM	Door Switch Module Windows/Mirror
EC	EC Mirror
ECM	Engine Control Module
EIS	Electronic Ignition Switch
EPKB	Electronic Parking Brake

Abbreviation	Meaning
EPS	Electric Power Steering
ESL (ELV)	Electric Steering Lock
ESP	Electronic Stability Control
FCW	Forward Collision Warning
FSCM	Fuel System Control Module
FSM	Flap Stepper Motors
GDO	Universal Garage Motor
GEN	Generator 150A
GPA	Glow Plug Activator
HLI_FL	Headlamp Interface Unit Left
HLI_FR	Headlamp Interface Unit Right
HVAC	Heating, Ventilation, and Air Conditioning
IBS	Intelligent Battery Sensor
IBSM_R1	Blind Spot Monitoring Meter
IBSM_R4	Blind Spot Monitoring Slave
IC	Instrument Cluster
IT_M	Display Control Unit (IT Master Gen5)
K-GO	Keyless-go
LCU_FL/FR	LED Control Unit Front
LRR	Long Range Radar
LSM/LRSM	Light/Rain Sensor Module
MPC	Multipurpose Camera
NAVI	Navigation

Abbreviation	Meaning
NOX_LT	NOX Sensor Left
NOX_RT	NOX Sensor Right
OCM	Occupant Classification Module
OHCM	Overhead Control Module
ORC	Occupant Restraint Controller
PSMD	Power Seat Module Driver
PSMP	Power Seat Module Passenger
PTC-D	PTC (Diesel Engine only)
PTS/APD	Sonar System/Park Assist Control
RVC	Rear Camera
SCCM	Steering Column Control Module
SEAT D	Seat Control Module Driver
SEAT P	Seat Control Module Passenger
SIREN	Intrusion Siren
SSP	Stop/Start pump
STS	Surface Temperature Sensor
SWSP	Steering Wheel Switch Pad
TCU	Telematic Control Unit
TGW	Telematics Gateway
TM	Trailer Module
TPMS	Tire Pressure Monitoring System
TSSR	Tilt Slide Sunroof Control Module
VLA	Vertical Levelling Actuator
VTA SM	Vehicle Theft Alarm Sensor Module

Network Divisions

Due to the large number of networked control units used on QX30, they have been arranged into the following main CAN systems:

* Front End CAN
* Powertrain CAN
* Chassis CAN
* Body CAN
* Multimedia CAN

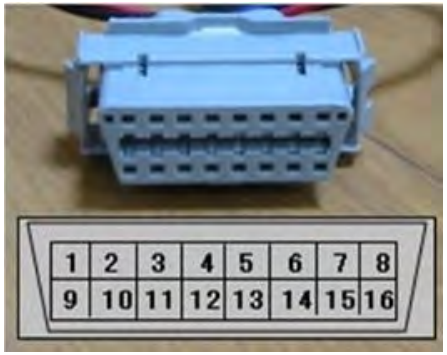
Gateways

The following control units are classed as gateways:

- Electronic Ignition Switch (EIS)
- CAN gateway
- ECM
- BCM

OBD Connector

The EIS and CAN gateway unit each have their own dedicated diagnostic lines of communication to CONSULT-III plus via the OBD diagnostic connector.

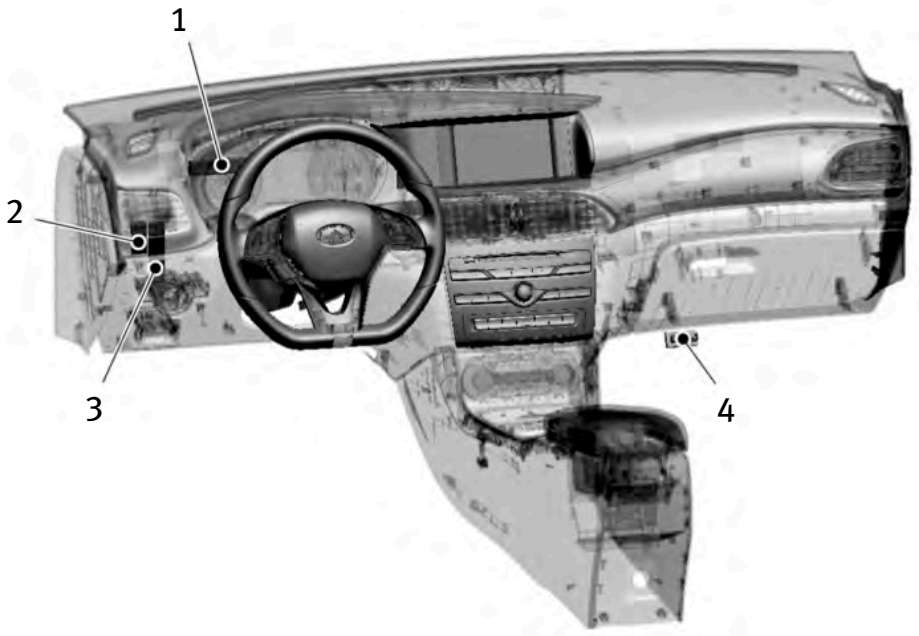


Pin information is as follows.

Gateway	CAN H	CAN L
EIS	6	14
CAN Gateway	13	12

Potential Distribution Electrical Connector (PDEC)

Most CAN networks have a CAN potential distributor electrical connector that acts as a centralized signal node point.
The diagram below is the layout of node points for a LHD vehicle.



1. Body CAN
2. Diagnostic CAN
3. Powertrain CAN
4. Chassis CAN

Each potential distributor has a slot for every control unit's CAN-H and CAN-L terminals. Two 30 ohm resistors are fitted in series to act as the signal buffer and replaces the more conventional use of 2 x 120 ohm resistors fitted in parallel (Multi-media (M-CAN) still uses 2 x 120 ohm resistors at termination points located in the CAN gateway).

CAN Potential Distributor Electrical Connector (Body)

CAN Potential Distributor Electrical Connector	Number of Slots (Connector)
Powertrain	6
Diagnostic	6
Body	13
Chassis	13

Resistance Value (normal condition at IGN-off) is as follows.

Terminal		Resistance (Ohm)
CAN-H	CAN-L	50-65

Reference voltage values for CAN potential distributors are shown below.
(IGN-ON condition, refer to appropriate service manual for details)

Terminals		Voltage
+	-	
CAN Potential Distributor Electrical Connector		
Terminal	Terminal	
CAN-H	Ground	2.5-2.7 (2.6-2.9)
CAN-L	Ground	2.1-2.3 (2.1-2.4)
CAN-H	CAN-L	0.2-0.4 (0.3-0.6)

1.6L and 2.0L Turbo Engines

Overview

QX30 developed for the North American market is equipped with a 2.0 liter and 1.6 liter transverse version of the 2.0 liter 4-cylinder longitudinal turbo direct injection engine first seen on Q50 in early 2016.
The engine mechanical and engine management systems are covered in depth in separate Q50 training. This section limits content to changes specific to its transverse application and also changes that have been made since its introduction in Q50.

Main Construction

- Direct injection with turbocharger
- Valve lifter-less camshaft drive
- Cylinder head cover with camshaft bearing cap
- Intake and exhaust VTC
- Crankshaft balancer (2.0L)

Engine Management

- Engine control module
- Fuel pump control module (FPCM)
- Stop/start compatibility
- Air/fuel ratio & knock sensor regulated fuel mapping

Electrical System

- Part of the powertrain CAN
- Revised connector design

Fuel System (Bosch)

- Single or tandem saddle fuel tank (FWD/AWD)
- Internal fuel tank low-pressure fuel pump
- Camshaft driven high-pressure fuel pump
- Piezo operated injectors

Intake, Exhaust, and Emission Systems

- Throttle valve actuator
- Mechanically controlled turbocharger

Oil and Cooling Systems

- Engine right side water pump
- Engine left side engine oil cooler
- Piston oil jet cooling
- Chain drive engine oil pump

Specifications

	1.6L Turbo (MEX)	2.0L Turbo
Configuration	In-line 4	In-line 4
Displacement	1595 cc	1991 cc
Fuel System	50 bar direct injection	50 bar direct injection
Injector	Piezo	Piezo
Turbocharger	Vacuum controlled boost regulation	Vacuum controlled boost regulation
Emission Regulation	OBDII	OBDII
Maximum Power	154 hp (115 kW)/5300 rpm	208 hp (155 kW)/5500 rpm
Maximum Torque	185 lb-ft (250 Nm) @1250-4000 rpm	258 lb-ft (350 Nm @1200-4400 rpm
Compression Ratio	10.3	9.8
Bore x Stroke	83 mm x 73.7 mm	83 mm x 92 mm
Drive	FWD	FWD/AWD

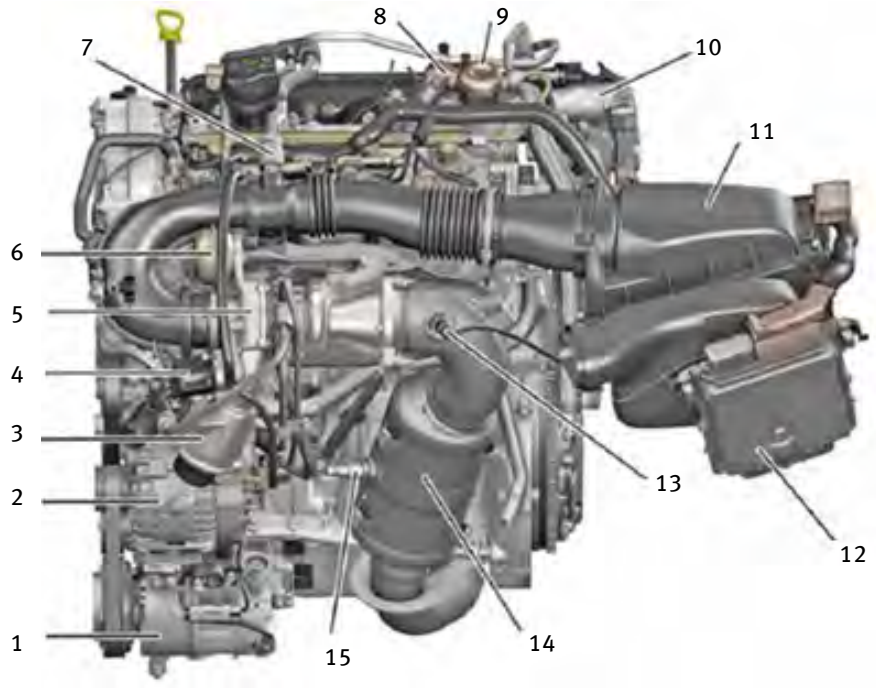
Service Point

Before carrying out diagnosis on the fuel system, release the fuel pressure as follows:

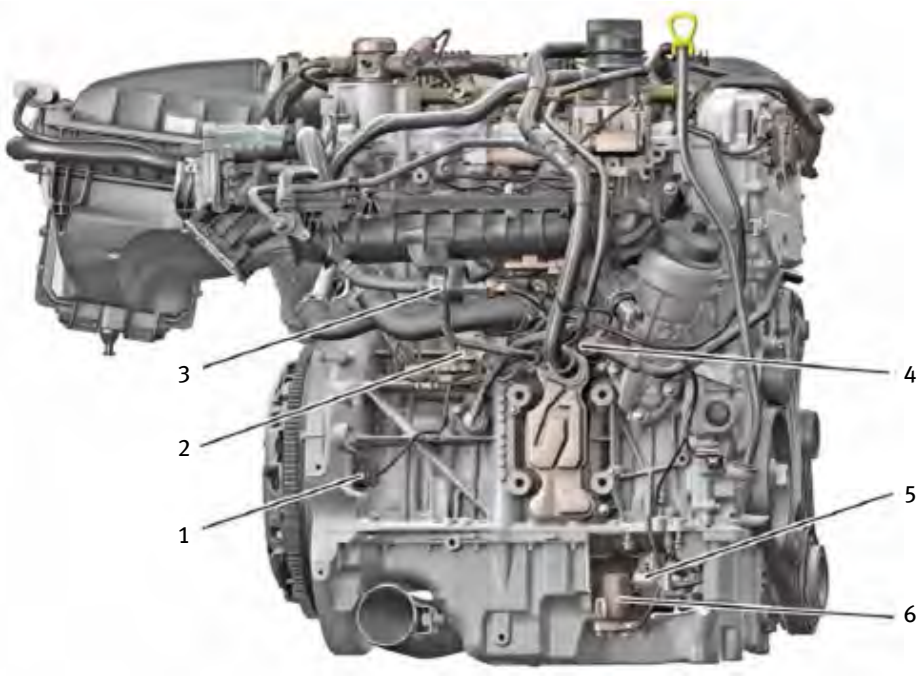
1. Remove fuel pump fuse.
2. Start the engine.
3. After engine stalls, crank it two or three times to release remaining fuel pressure.
4. Turn ignition switch OFF.

Component Locations

A large number of engine management and stop/start system components are fitted to both the 2.0L and 1.6L versions of this engine that enable it to meet OBDII emissions regulations. The images below show some of these components, while full details can be found in the service manual.



1. Compressor
2. Alternator
3. Noise Damper
4. Divert Air Switchover Valve
5. Turbocharger
6. Boost Pressure Control Flap Vacuum Actuator
7. Full Load Operation Vent Line Heater Element
8. Quantity Control Valve
9. High-pressure Pump
10. Throttle Valve Actuator
11. Air Cleaner Housing Cover
12. ECM
13. Air Fuel Ratio (A/F) Sensor
14. Catalytic Converter
15. Heated Oxygen Sensor



1. Crankshaft Position Sensor
2. Knock Sensor 2
3. Partial Load Operation Crankcase Ventilation Valve
4. Knock Sensor 1
5. Engine Oil Pump Valve
6. Engine Oil Level Switch

Crank Pulley

Both a cylinder 1 TDC timing mark and a 79° ATDC mark for high-pressure fuel pump removal are provided. Do strike or drop parts during removal and assembly.

79° Mark

79° Mark

Camshaft Timing

The cylinder head camshaft positions are reversed on the transverse version of this engine to improve turbo cooling. The method of camshaft timing however remains the same as the 2.0t engine used in the Q50.

	Intake	Exhaust
Longitudinal	RHS	LHS
Transverse	LHS	RHS

Intake Side

Exhaust Side

Crankshaft Position

The new increment wheel consists of a metal support on which a rubber track filled with ferrite particles is vulcanized in axial or radial form. The signal is required for recording the engine speed and rotational angle in both forward and reverse directions as the engine comes to rest. This enables quicker engine restarting.
The wheel must never come within the vicinity of a magnetic field as this could damage the wheel causing engine performance issues.
Cleanliness is also important.

Qrmn-Qr_pr Qwqrc k

Rfc q_kc qrmn-qr_pr qwqrc k gq _nnjgcb rm _jj OV1. kmbcjq, Rfc qrmn-qr_pr qwqrc k pcosgpcq _jj md rfc dmjjmug le am lbgrgm lq `cdmpc ds largm l ugjj maasp8

- Engine running
- Outside temperature between 14°F (-10°C) and 104°F (40°C)
- Engine hood closed
- Battery temperature between 32°F (0°C) and 140° (60°C)
- Complete system diagnosis no malfunction detected
- Vehicle driven above 5 mph (8 km/h) after engine key start
- Vehicle driven above 10 mph (15 km/h) after engine restart*
- Interior temperature within regulated range

When the function requirements are fulfilled, the engine will shut off automatically when the vehicle is stopped. The driver is notified of the stop/start system operation by the stop/start indicator in the multifunction display of the combination meter.

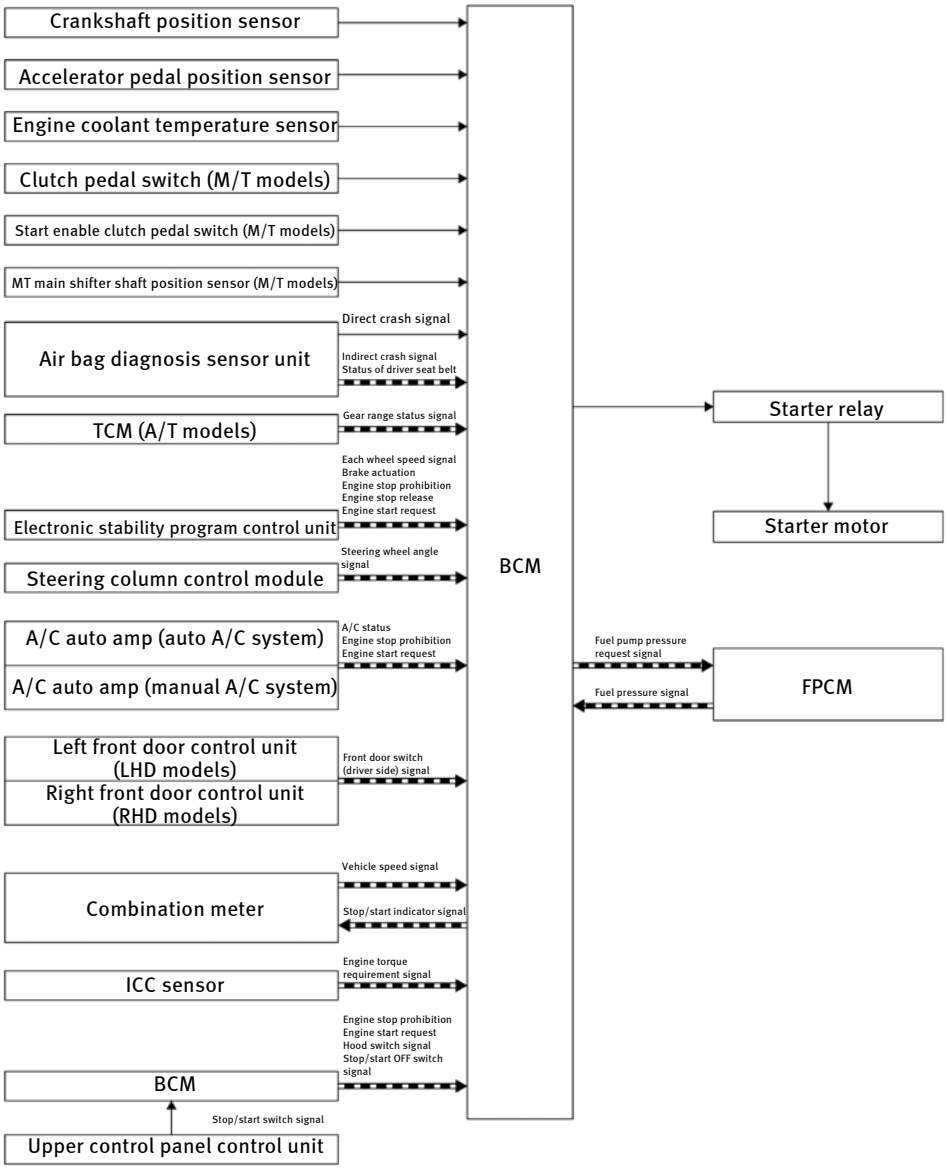
The stop/start system consists of the following partial functions:

- Function sequence for automatic engine stop
- Function sequence for automatic engine restart
- Function sequence for forced engine restart (a start dictated by the system)
- Function for power supply to on-board electrical system

*QX30 will activate stop/start function up to four times before function is inhibited if vehicle speed does not exceed 10 mph (15kph) such as during stop-and-go traffic. Stop/start function will resume after vehicle has been driven in excess of 10mph (15kph).

Stop/Start Indicator: The conditions for the stop/start system are fulfilled, engine is stopped

Stop/Start Cancel Switch: System is active when LED is illuminated



Twin Battery Management

Sub Battery Relay

- Controlled by BCM
- Activated during a stop/start engine restart
- Sub battery is switched through to the on-board electrical system

Decoupling Relay

- Controlled by BCM
- Deactivated during a stop/start engine restart
- Isolates the main battery from the sub battery
- Ensures main battery is free to support engine starting
- Reactivated once engine has started

Additional 12V, 12 Ah Sub Battery

- Located under the passenger side of the instrument panel
- Supplies energy to comfort and convenience features
- Ensures no loss in performance during a stop/start engine restart

Current and Temperature Sensor Modules

- Connected to BCM
- Attached to main and sub battery negative terminals
- Monitors battery voltage, current, and temperature

GE7F30A Dual Clutch Transmission

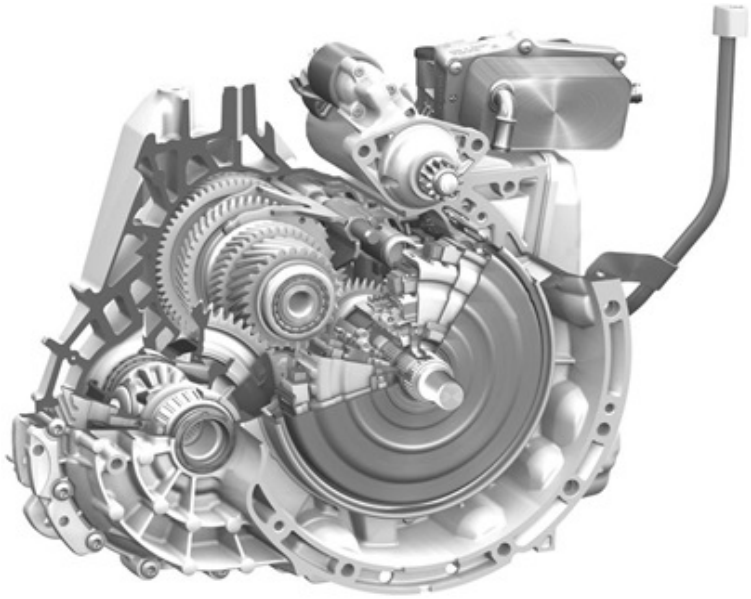
Overview

The dual clutch transmission combines the sporty dynamics of a manual transmission with the convenience of an automatic transmission.

The GE7F30A is a three-shaft manual transmission with two multi-disc clutches contained in a single housing. An internal TCM and electro-hydraulic control valve manages the automatic clutch operation and gear changes. Steering wheel-mounted paddle shifters provide a manual gear selection option.

Heat generated by the constant activation of the multi-disc clutches is handled by an active oil cooling system.

The GE7F30A is suitable for use with the stop/start function. When the stop/start function is active (engine off), an electric auxiliary oil pump supplies the shift elements and actuators of the electro-hydraulic transmission control system with hydraulic pressure.

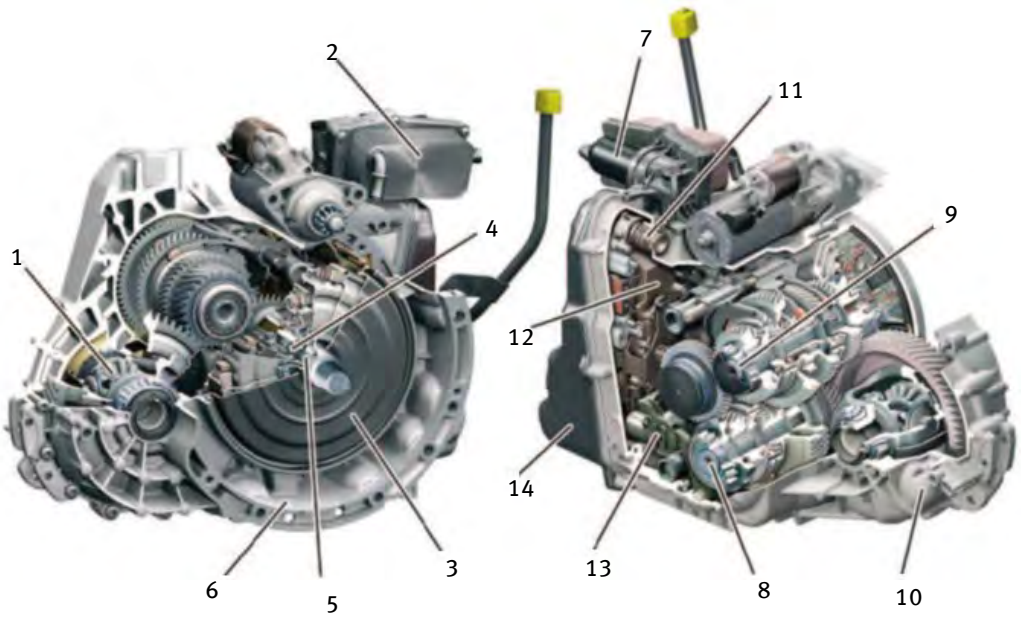


Gear Ratios

DCT is favored over continuously variable transmission (CVT) as it can handle higher torque applications on QX30 between 258 lb-ft to 331 lb-ft (350 Nm to 450 Nm).

		1.6L	2.0L
		2WD	2, AWD
1st Gear		3.8571	3.8571
2nd Gear		2.4286	2.4286
3rd Gear		2.9048	2.6667
4th Gear		1.1892	1.0488
5th Gear		0.8723	0.7755
6th Gear		1.1622	1.0488
7th Gear		0.9362	0.8367
Reverse Gear		3.0984	3.3750
Final Gear	3rd, 6th and 7th	2.654	2.654
	1st, 2nd, 4th, 5th and Reverse	4.6	4.6

Main Components



1. Differential Pinion
2. Oil Heat Exchanger
3. Dual Clutch
4. Hollow Shaft
5. Internal Shaft
6. Clutch Housing
7. Oil Filter
8. Output Shaft 1
9. Output Shaft 2
10. Transmission Housing
11. TCM Electrical Connector
12. TCM
13. Park Pawl System
14. Oil Pan

Gear Train Operation

The gear train comprises:

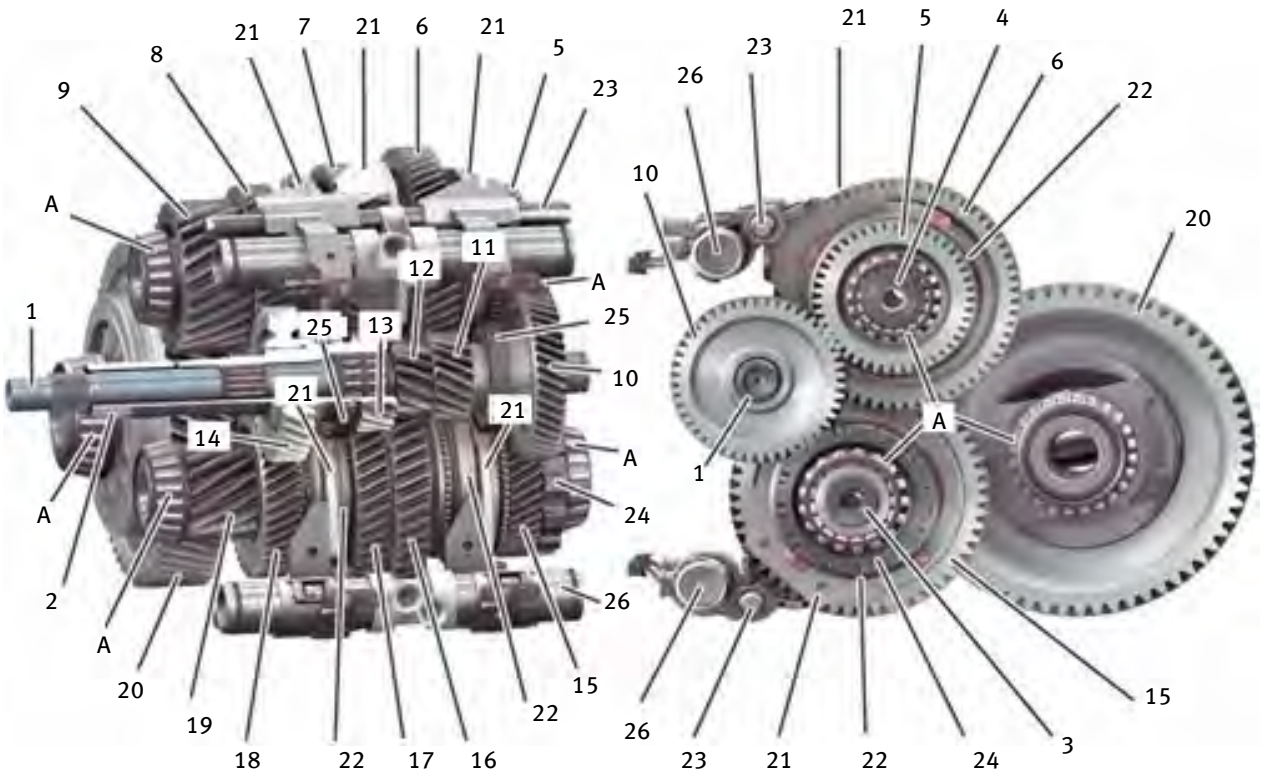
- An input shaft containing an internal solid shaft and an outer hollow shaft.
  - The internal shaft has three fixed gears and a speed sensor rotor.
  - The hollow shaft has two fixed gears and a speed sensor rotor.
- Two output shafts containing the idler gears, synchronizers and one fixed gear each.
- A park pawl gear fitted to output shaft 1.
- A differential pinion with spur gear.

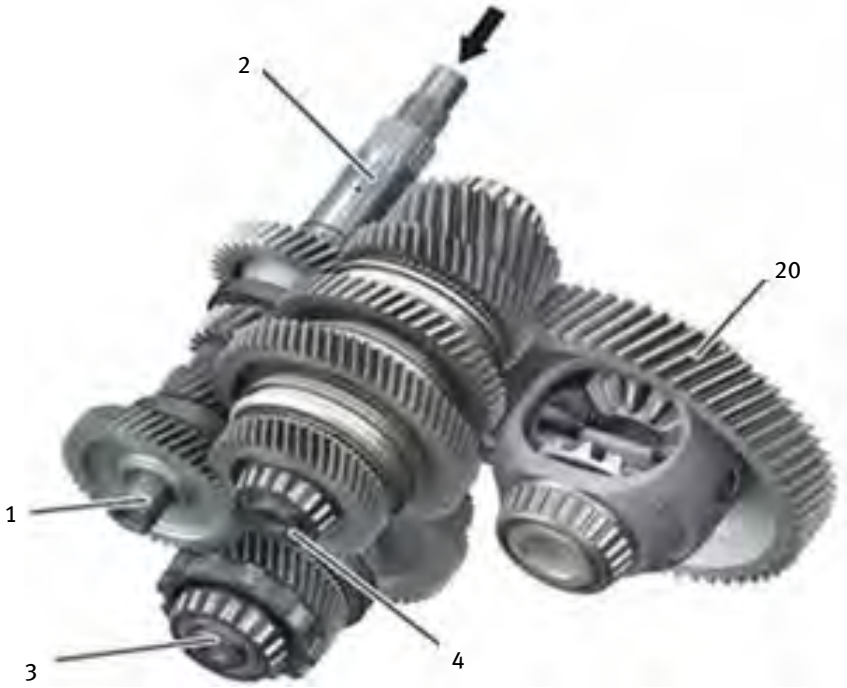
Power flow takes place via the corresponding internal or hollow shaft fixed gear to the associated output shaft idler gears, depending on which clutch is engaged.

Note that all gears are splined together with the respective shafts without the synchronizer engaged are designated fixed gears.

Gears 1-7 and Reverse gear are idler gears that can be braked by synchronization devices and positively connected to the respective output shaft.

Gear Train Construction





1. Internal Shaft
2. Hollow Shaft
3. Output Shaft 1
4. Output Shaft 2
5. 7th Gear Idler
6. 3rd Gear Idler
7. Reverse Gear Idler
8. 6th Gear Idler
9. Output Shaft Fixed Gear 2
10. Internal Shaft Fixed 5th/7th Gear
11. Internal Shaft Fixed 3rd Gear
12. Internal Shaft 1st Fixed Gear
13. Hollow Shaft Fixed 2nd/Reverse Gear
14. Hollow Shaft Fixed 4th/6th Gear
15. 5th Gear Idler
16. 1st Gear Idler
17. 2nd Gear Idler
18. 4th Gear Idler
19. Output Shaft Fixed Gear 1
20. Spur Gear (Differential Pinion)
21. Shift Fork
22. Sliding Sleeve
23. Shift Rod
24. Park Pawl Gear
25. Sensor Rotor
26. Gear Actuator Cylinder

A. Tapered Roller Bearings

Dual Clutch Operation

The dual clutch assembly contains two multi-disc clutches that are alternately electro-hydraulically actuated to engage or disengage. Clutch K1 is coupled to the internal shaft and clutch K2 is coupled to the hollow shaft. The gear expected to be engaged next is pre-selected by the TCM.

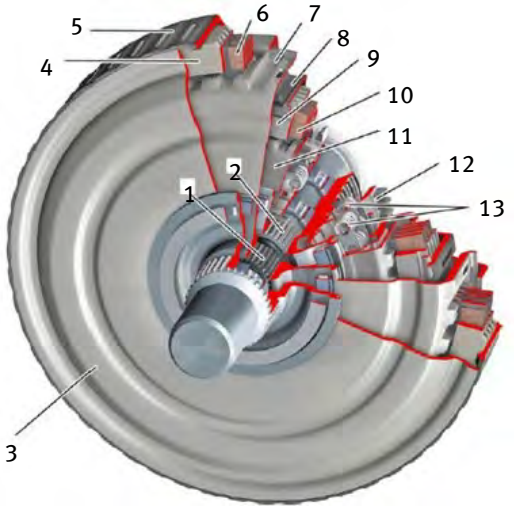
Clutch Open	Clutch Closed
No torque transmission	Torque transmission

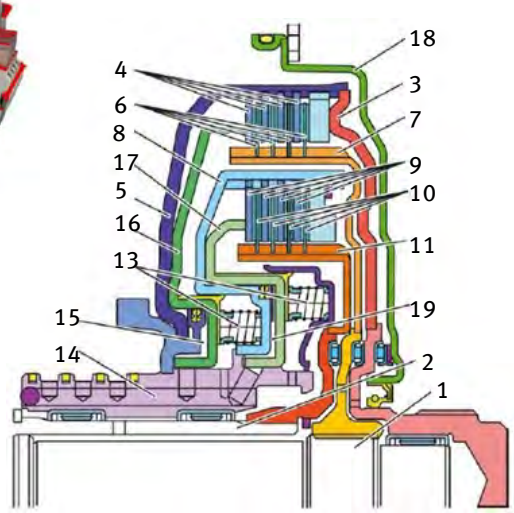
With the ignition ON in Neutral, both clutches are open. The drive shafts are at a standstill and no force is transmitted into the transmission. However both Gear 1 and Reverse are pre-selected in anticipation of driver requirements. Torque transfer takes place as follows on an alternating basis between the outer multi-disc clutch (K1) and the inner multi-disc clutch (K2) of the dual clutch module.

Internal Shaft	Outer Clutch (K1)	Gears 1, 3, 5 & 7
Hollow Shaft	Inner Clutch (K2)	Gears 2, 4, 6 & Reverse

As the engine, transmission, and road speeds/loads increase, so does the transmission oil clamping force required to stop the multi-disc clutch plates from slipping.
The internal shaft and hollow shaft speed sensors ensure the appropriate transmission oil pressure is applied to clutches K1 and K2 in all operating conditions.

Dual Clutch Construction





1. Internal Shaft
2. Hollow Shaft
3. Drive Plate
4. K1 Clutch External Plates
5. K1 Clutch External Plate Carrier
6. K1 Clutch Internal Plates
7. K1 Clutch Internal Plate Carrier
8. K2 Clutch External Plate Carrier
9. K2 Clutch External Plates
10. K2 Clutch Internal Plates
11. K2 Clutch Internal Plate Carrier
12. Drive Gear (Oil Pump)
13. Centrifugal Return Spring Package
14. Clutch Hub with Oil Duct
15. K1 Clutch Pressure Chamber
16. K1 Clutch Piston
17. K2 Clutch Piston
18. Clutch Cover
19. K2 Clutch Pressure Chamber

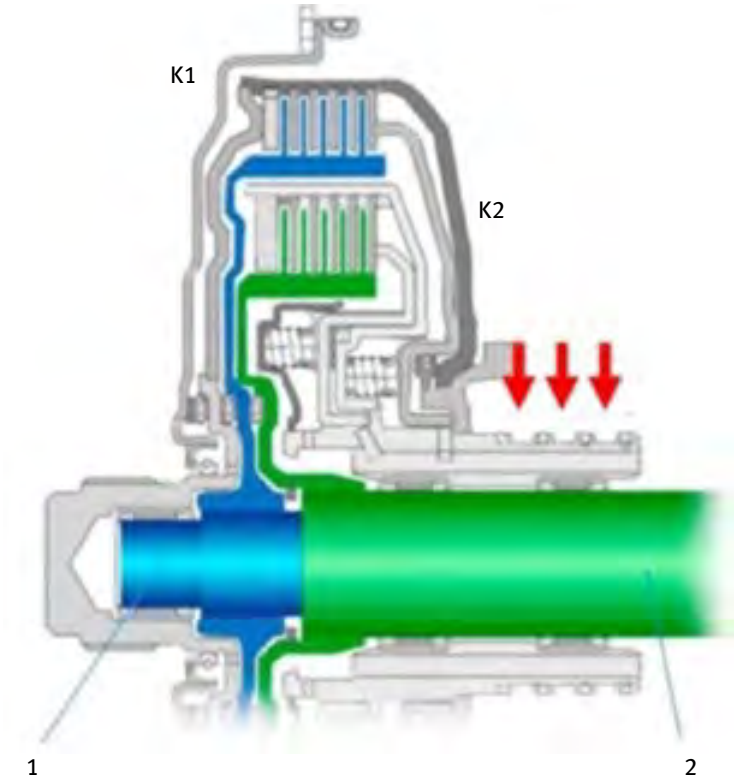
Power Flow

Engine torque output is transferred to the DCT via the crankshaft drive plate.

Depending on clutch K1 or K2 engagement, the DCT internal shaft or hollow shaft transmits the torque to the driven road wheels via output shafts 1 and 2 to the pinion differential.

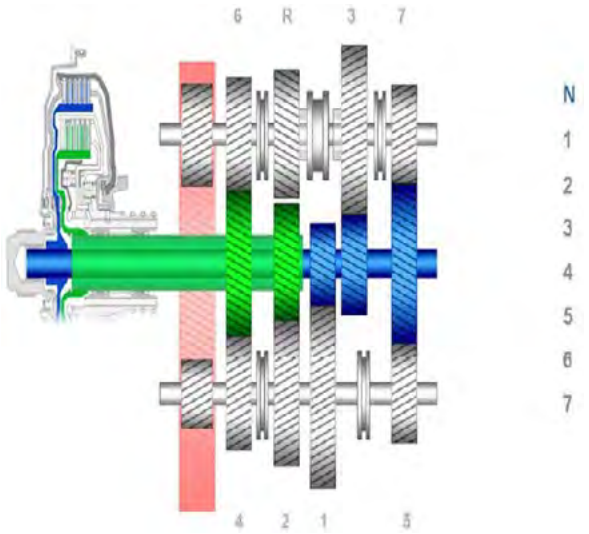
The TCM controls gear selection via the hydraulically-operated internal shift mechanism, providing uninterrupted torque transfer shift operations.

The power flow of the gears is shown in the following illustrations.

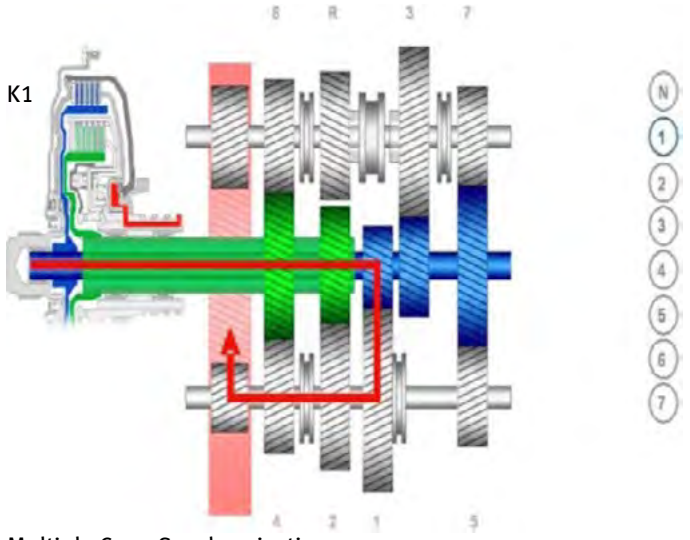


1. Internal Shaft
2. Hollow Shaft

Neutral

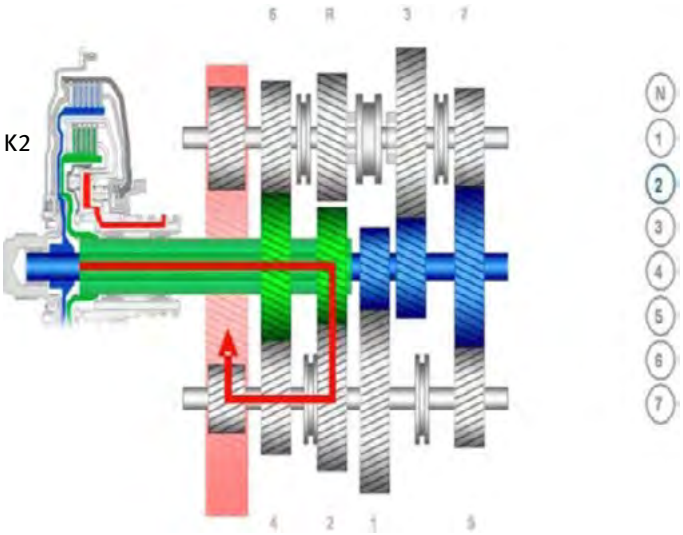


1st Gear



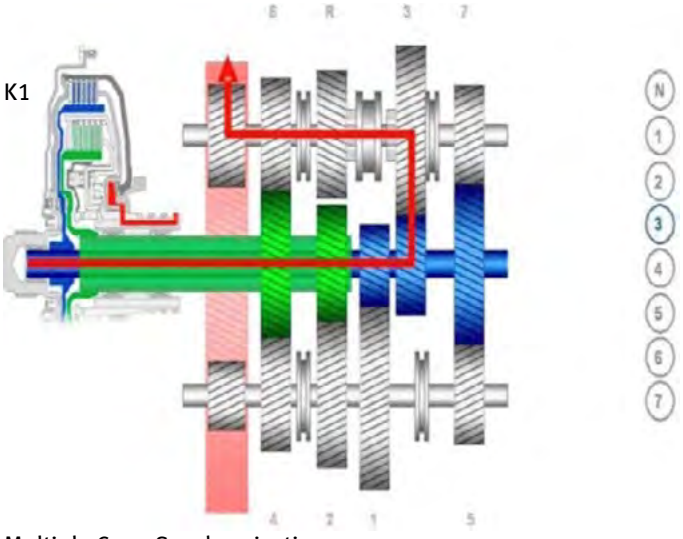
Multiple Cone Synchronization

2nd Gear



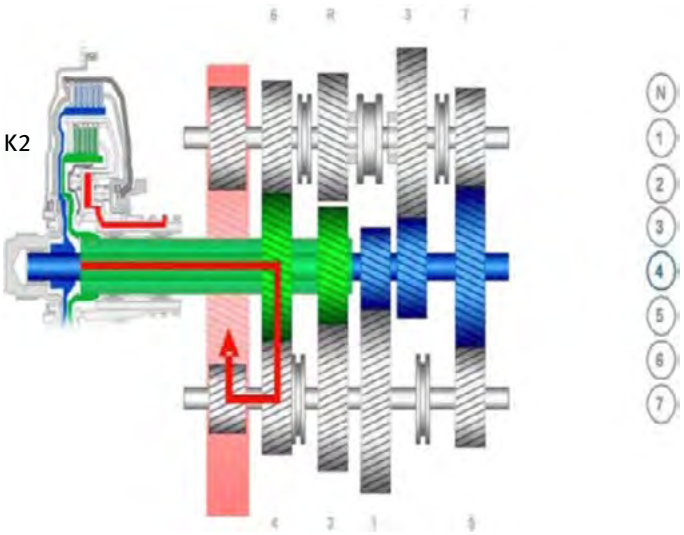
Multiple Cone Synchronization

3rd Gear



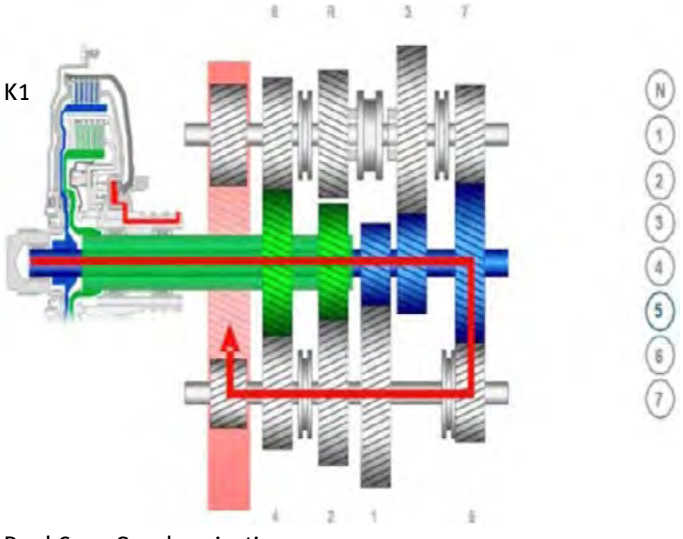
Multiple Cone Synchronization

4th Gear



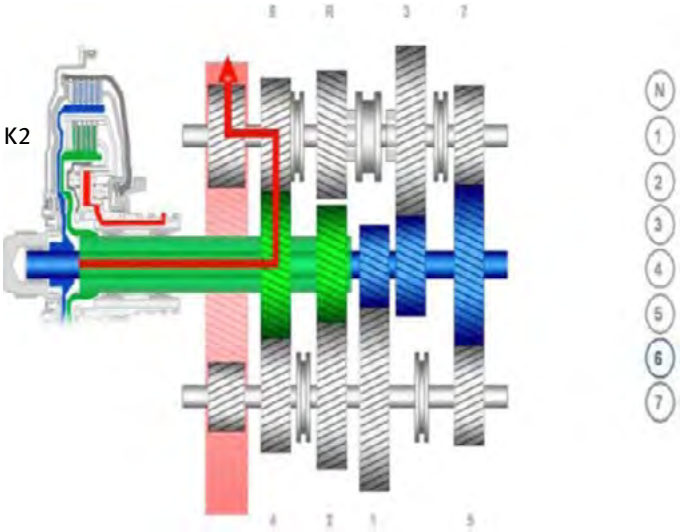
Dual Cone Synchronization

5th Gear



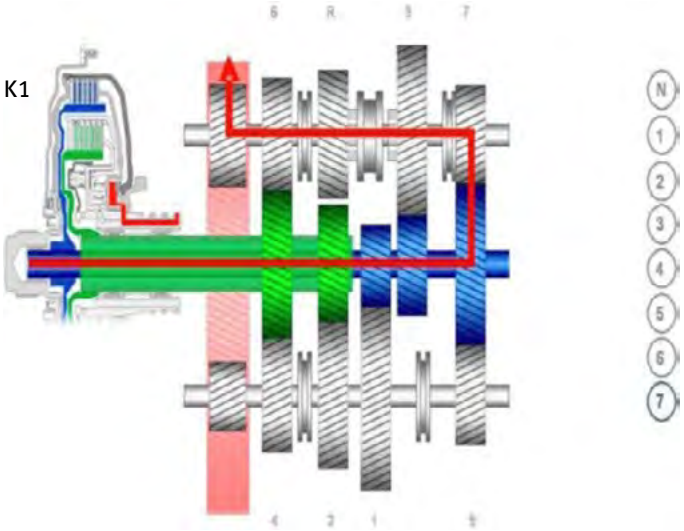
Dual Cone Synchronization

6th Gear



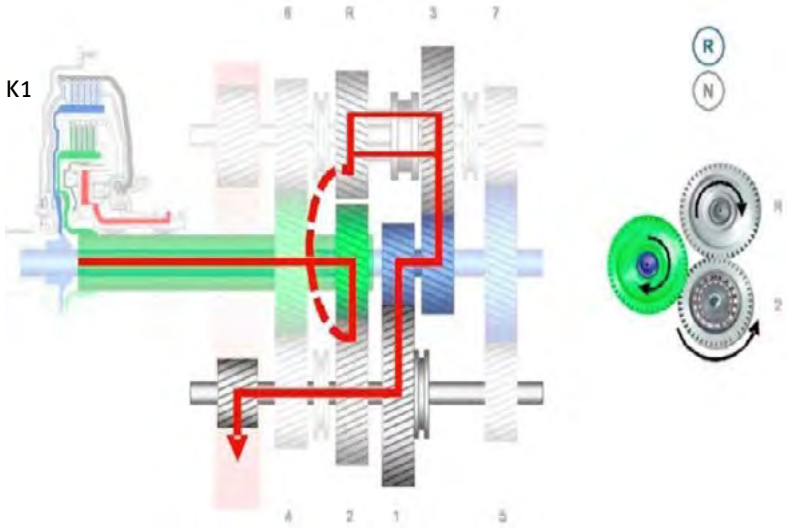
Dual Cone Synchronization

7th Gear



Dual Cone Synchronization

Reverse Gear



Single Cone Synchronization

Reverse Gear Operation

Reverse gear is not driven by a fixed gear on one of the drive shafts, but rather by the gear wheel for 2nd gear on the opposite output shaft. This results in the following power flow:

The driving power is transmitted from the hollow shaft via the fixed gear to the gear wheel of 2nd gear. Gear wheel 2 transmits the power to the reverse gear, since it is always meshed with this. The reverse gear is permanently connected to the synchronizer body of the right gearshift sleeve so that it is frictionally connected to the adjacent gearwheel for 3rd gear.

Gearwheel 3 transmits the power via the two fixed gears on drive shaft one to the gearwheel of first gear. Via the right gearshift sleeve, gearwheel 1 is frictionally connected to output shaft 1. The driving power is transmitted via the fixed gear of output shaft 1 to the differential, which now turns in the opposite direction as the other gears. The gear ratio here is similar to 1st gear.

Control Valve Assembly

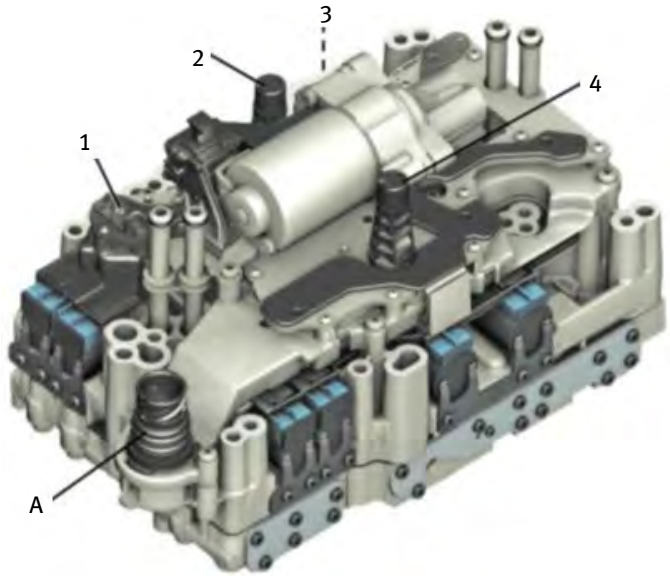
The control valve assembly includes an electro-hydraulic valve block, the TCM, and auxiliary oil pump.

The valve body contains the components involved in gearshift, lubrication, and control processes, and the internal sensor system includes RPM, temperature, pressure and position sensors.

The TCM evaluates internal and incoming signals/requests from other control units via CAN to perform the following:

- Shift and control solenoid valves
- Electric auxiliary oil pump
- Hydraulic park pawl actuation
- Electric park pawl release

The integrated electric auxiliary oil pump works in conjunction with a mechanical oil pump.



A. Electrical Connector
1. Clutch Temperature Sensor
2. Hollow Shaft RPM Sensor
3. Engine Speed Sensor
4. Internal Shaft RPM Sensor

Shift Selector

Like an automatic transmission, park, neutral, drive and reverse can be engaged. Three modes are also available.

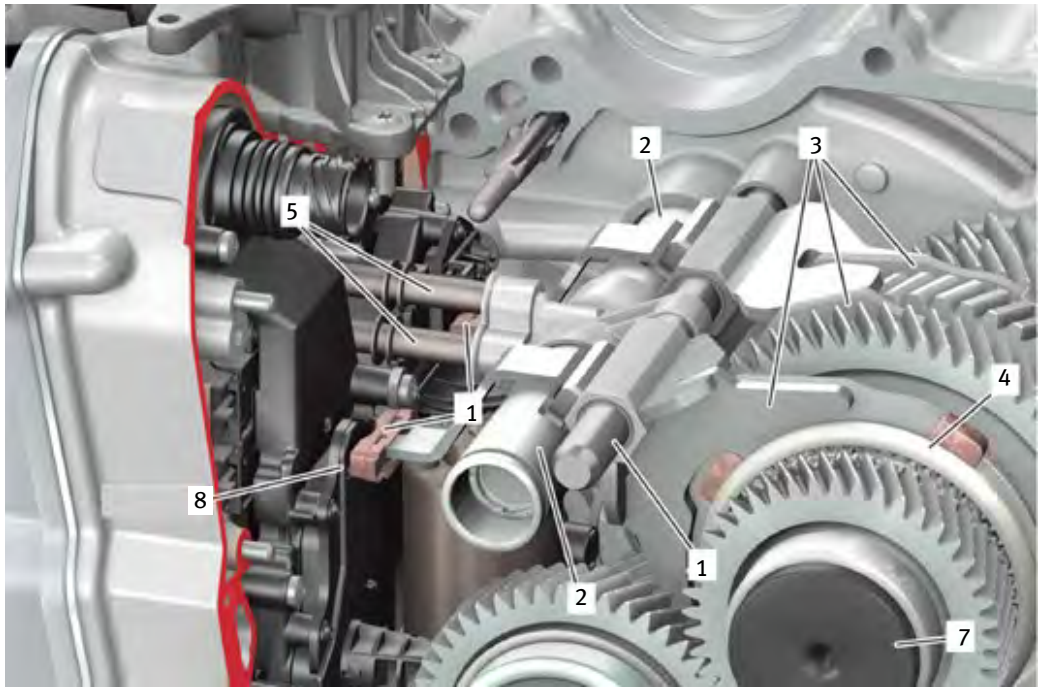
- Manual shifting using the steering wheel paddles
- Economy mode
- Sport mode

Selection information is displayed in the central area of the combination meter.

1. Vehicle Information Display
2. Parking Brake Indicator Lamp
3. Parking Brake Warning Lamp
4. Engine Diagnosis Indicator Lamp
5. Transmission Mode Display
6. Gear Indicator
7. Instrument Cluster

Gear Shift

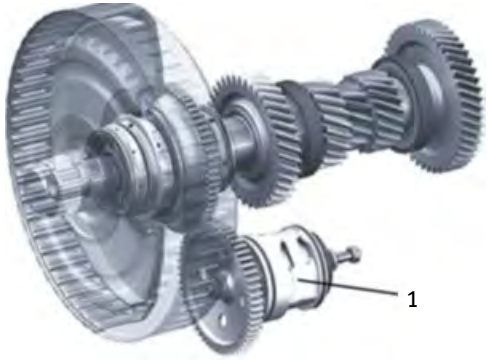
To engage a gear, pressure must be increased or relieved in the respective gear positioning cylinder so the sliding sleeve of the synchronization system is moved by the shift fork. The shift fork moves the sliding sleeve in the axial direction and thus synchronizes the speed between idler gear and output shaft so the gear can be shifted. Permanent magnets are embedded in the shift forks. Sensors are mounted in the control valve to indicate to the transmission control unit the position of the shift fork.



1. Permanent Magnet
2. Gear Positioning Cylinder
3. Shift Fork
4. Sliding Sleeve of the Synchronization System
5. Oil Pipe
6. Shift Rod
7. Output Shaft 2
8. Shift Fork Position Sensor 3

Oil Supply

DCT oil supply and lubrication occurs through two transmission oil pumps that deliver independently of one another, together with a degree of splash lubrication of the gears.
The primary pump (1) ensures an oil supply whenever the engine is running and is driven directly off the dual clutch via a pair of gears.

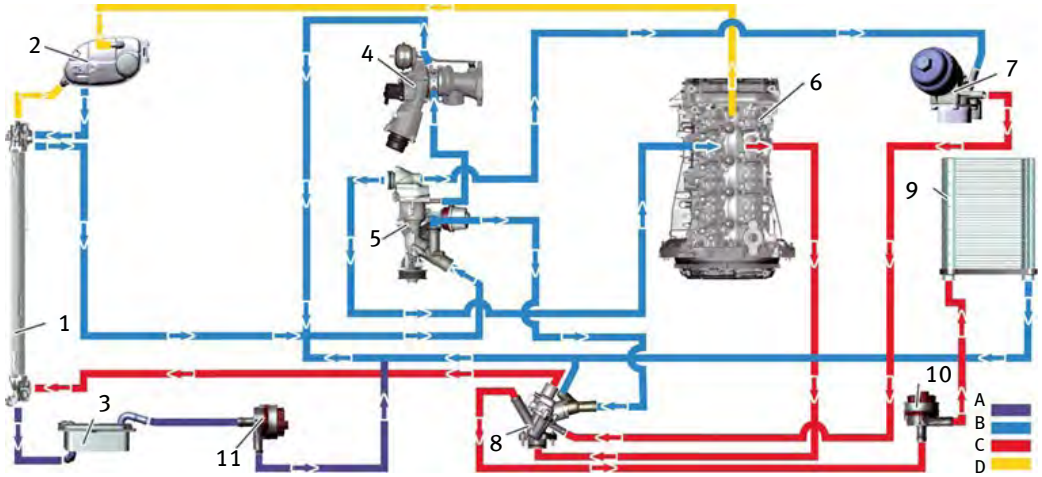


The regulated pump pressure is between 50 and 320 PSI (350 to 2200 kPa) depending on engine speed.
The electric transmission oil pump, located centrally on the control valve assembly, supports the primary pump under the following operating conditions:

- At low rotational speeds
- In start/stop mode
- High automatic transmission fluid temperature to assist in clutch cooling

Transmission Cooling

Due to ever frequent shift and clutch operations which can involve hill starts and high loads, the transmission oil requires temperature management to avoid malfunctions due to insufficient cooling. The DCT oil heat exchanger is located on the transmission housing and forms the interface between the engine coolant circuit and automatic transmission fluid circuit.
The transmission oil temperature is recorded by the TCM from the clutch temperature sensor and transmitted to the engine control module (ECM) via drivetrain CAN.
The flow of coolant is controlled by the DCT cooling circulation pump from the engine control unit as required. The automatic transmission fluid returns to the transmission housing via a return duct.



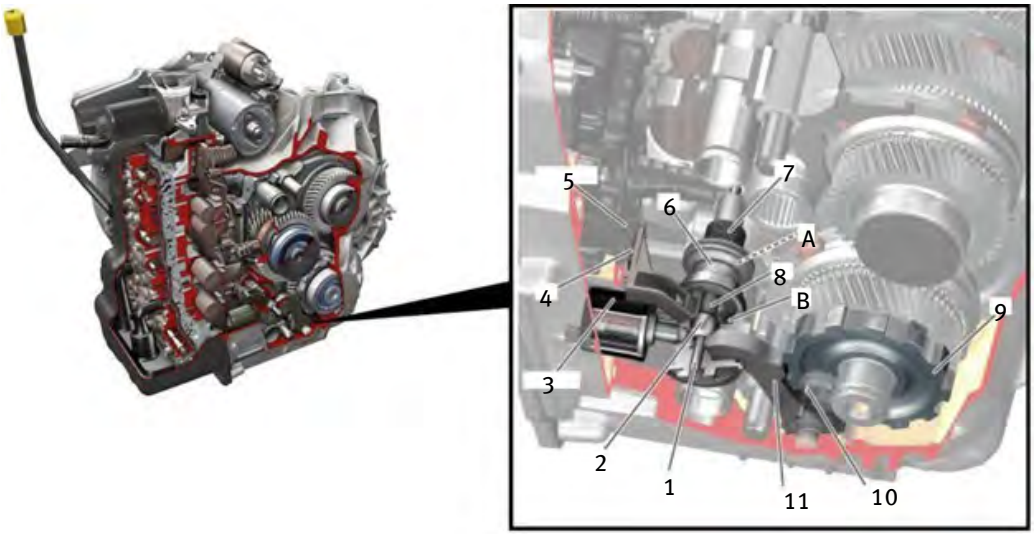
1. Cooler
2. Expansion Reservoir
3. DCT Oil Heat Exchanger
4. Turbocharger
5. Coolant Pump
6. Engine
7. Engine Oil Heat Exchanger
8. Thermostat
9. Heating Matrix
10. Air Conditioning Circulation
11. DCT Cooling Circulation Pump

A. DCT Cooling Circuit Return
B. Coolant Return to the Engine
C. Coolant Feed
D. Coolant Circuit Expansion

Park Pawl

A parking pawl locking system is fitted to prevent the vehicle from rolling away when parked, and is selected via the shift selector (P) position.
The electric transmission oil pump supplies the oil pressure to apply and release the park pawl. CONSULT can be used to disengage the park pawl if the electrical system is in working order.

NOTE: Should the electrical system fail, there is no emergency park pawl release mechanism beneath the shift selector.



1. Emergency Push Rod
2. Pressure Cone
3. Park Pawl Locking Solenoid
4. Permanent Magnet
5. Park Pawl Position Sensor
6. Piston
7. Piston Spring
8. Pressure Cone Spring
9. Park Pawl Gear
10. Coil Spring
11. Park Detent

A. Pressure Chamber (Position P)
B. Pressure Chamber (Position not P)

Maintenance

Contamination is the greatest threat to DCT longevity. When carrying out service and maintenance work, cleanliness is extremely important.
There are two oil filters - an external pressure oil filter and a suction oil filter located in the oil sump.
Oil change interval is 60,000 mi/5 years and includes both pressure and suction oil filter replacement.
Oil level check is only possible using CONSULT-III plus.
Oil level dipstick J-51940 is also required.

1. Pressure Oil Filter
2. Suction Oil Filter

Diagnosis and Repair

The DCT can be divided into three distinct areas, and most problems associated with DCT are attributable to electrical aspects of operation.

- The clutch housing with dual clutch module (cannot be disassembled).
- The mechanical gear train, differential, and park pawl
- The electrical TCM and control valve assembly (can be diagnosed and replaced as separate units).

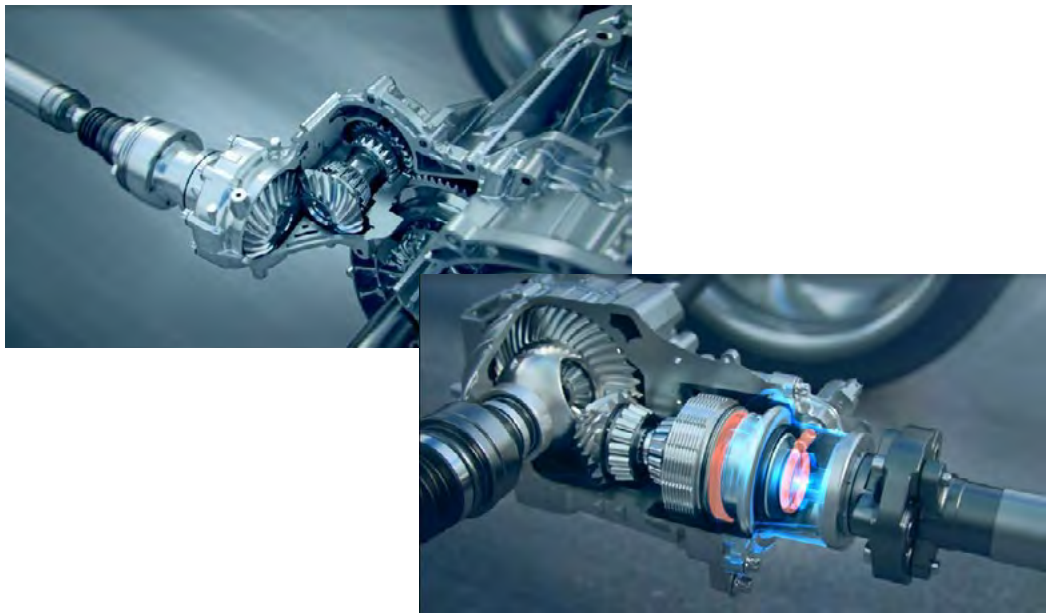
Many parameters are available in Data Monitor, including:

- Clutch application and slip (internal speed sensors)
- Gear selection solenoid actuation
- Internal oil pressure and electric pump activation
- Cooling management

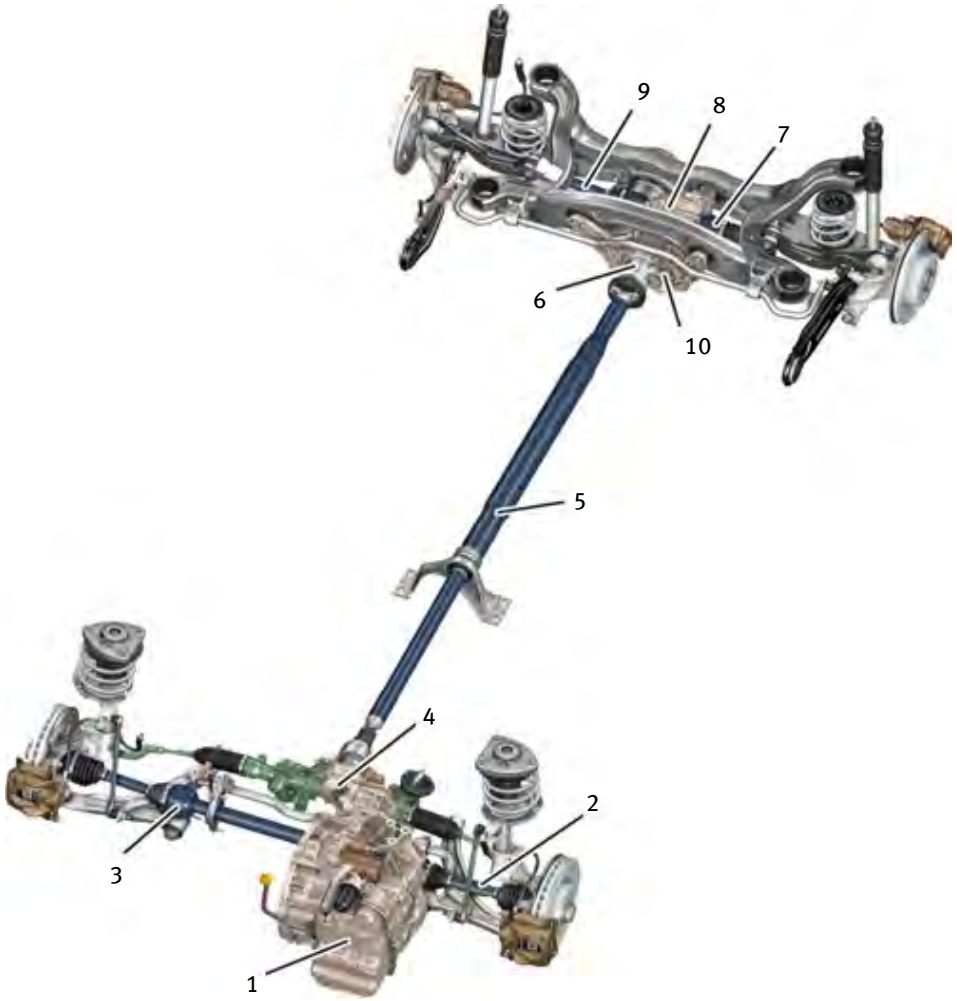
There is no requirement for adapting the multi-disc clutch touch points. This is done automatically.
If the electrical pump fails, no gears can be selected. If clutches slip, suspect the mechanical oil pump.
With the ignition ON and engine OFF, if you can shift from N to P the electric pump is working.
The DCT cannot be separated from the engine without removing both from the vehicle.
If a DCT is transferred to another vehicle, a new TCM is required due to its immobilizer status.
A service part control valve assembly can be installed, adapted to vehicle, and road tested for diagnostic purposes prior to marrying to the vehicle. After 40 ignition cycles, the valve assembly will marry itself to the vehicle and cannot be used on other vehicles.

All Wheel Drive

The automatically-controlled all wheel drive (AWD) uses a transfer at the dual clutch transmission and a multiple disc clutch integrated in the rear final drive assembly.
On dry road surfaces and with smooth driving style, torque is applied 100% to the front axle but can be distributed to both axles if required. Operation of the multiple disc clutch enables up to 50% of the drive torque to be directed to the rear axle if traction is lost on the front axle.
The propeller shaft turns constantly while driving.
Torque capacity is 550 lb-ft (750 Nm).



An oil pump in the rear final drive generates oil pressure if there is a difference in revolution speeds between the front and rear axles.
The AWD control unit regulates the oil pressure using a solenoid valve and thus the drive torque transferred to the rear axle, depending on the driving situation.



1. Dual Clutch Transmission
2. Left Front Drive Shaft
3. Right Front Drive Shaft
4. Transfer
5. Rear Axle Propeller Shaft
6. Multiple Disk Clutch
7. Left Rear Drive Shaft
8. Rear Final Drive
9. Right Rear Drive Shaft
10. All Wheel Drive Solenoid Valve

System Integration

The AWD system works alongside the Bosch 9 ABS/TCS/ESP system.

AWD Control Unit

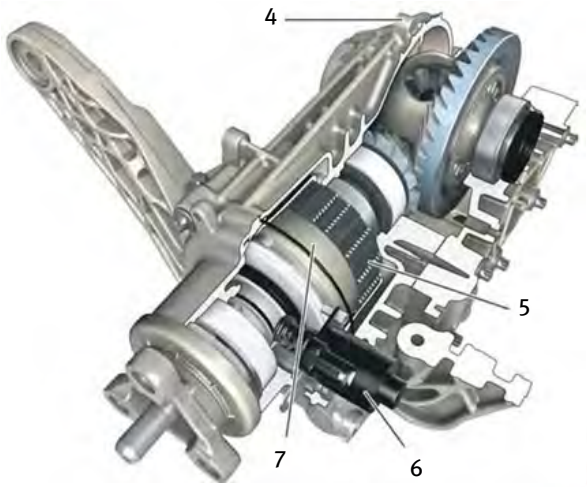
The AWD control unit is installed in the rear area on the left hand side of the luggage area. The control unit actuates the AWD solenoid valve to enable activation of the rear axle. The control unit is connected to the powertrain CAN.

Wear data of the rear final drive is stored in the AWD control unit. When the control unit is replaced, this data must first be recorded using CONSULT-III plus and then transferred to the new control unit. If the oil or the entire rear final drive differential is replaced, the wear data must be reset to guarantee optimum operation.

AWD Solenoid Valve

Replacement of the AWD solenoid valve requires resetting learned values using CONSULT-III plus work support.

Oil Pump



1. Piston
2. Pressure Chamber
3. Oil Pump
4. Housing
5. Disk Pack
6. AWD Solenoid Valve
7. Oil Pump

Service Point

The correct oil is Castrol BOT 355 75W-85 (0.74 L).

Inspect and correct or replace as necessary each 10,000 mi or 12 months.

Suspension

QX30 is equipped with fully independent front and rear suspension systems that provide maximum levels of driving stability and ride comfort.
Three ride heights are available, depending on model.
QX30 Base and QX30 Premium are fitted with standard suspension, while QX30 Sport has stiffer dampers and stronger springs, lowering the vehicle by 15 mm in comparison with the other models. This results in smaller roll angles during dynamic driving.
A third ride height is available on the QX30 AWD. The AWD model is 30 mm higher than QX30 base and premium models.
Drive shafts are mounted to the wheel hubs as shown.

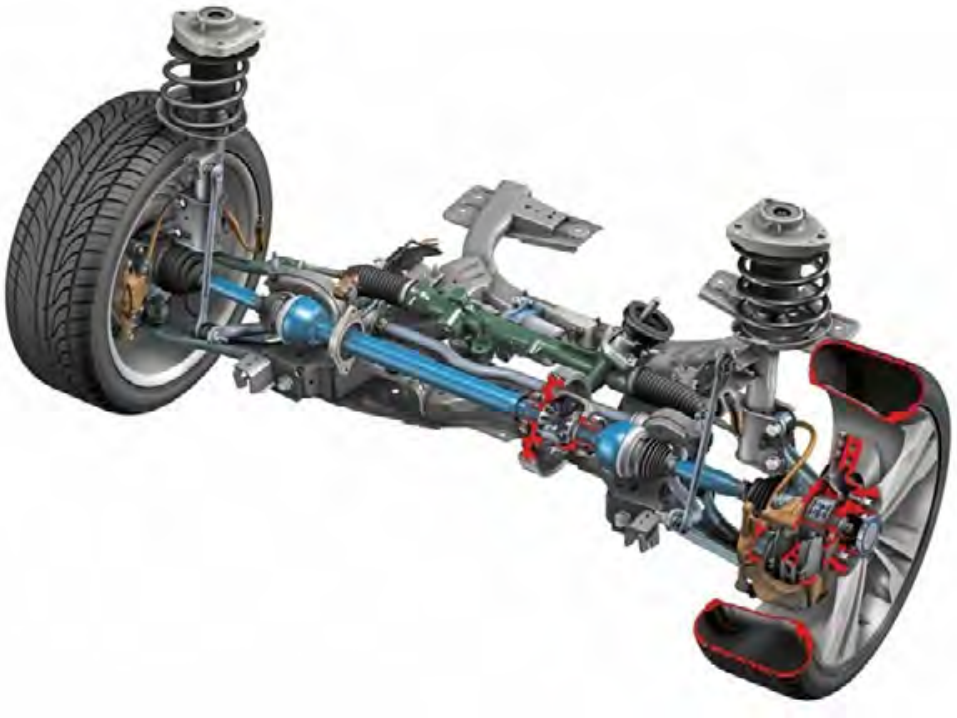

Front


Rear (AWD)

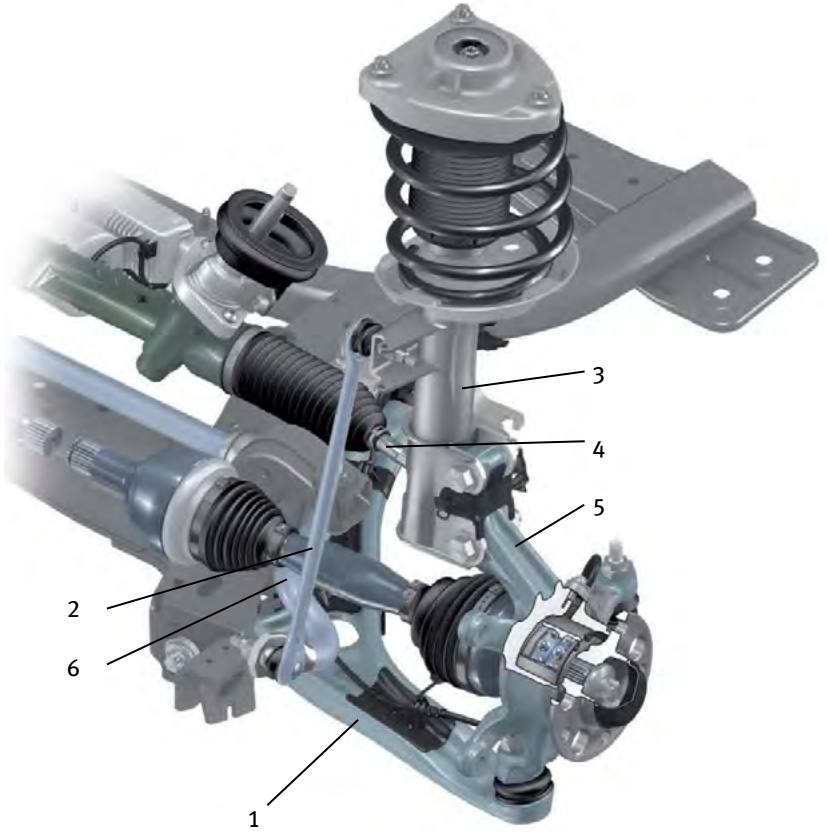

Rear (FWD)

Front Suspension

The MacPherson strut suspension units feature hollow piston rods and aluminium head bearings to reduce weight. Coil spring retention cups are perforated for dirt removal. The dampers are progressive and mechanically switch from soft to harder damping over the first 10 millimetres of travel. The front sway bar is mounted to the vehicle body using low friction vulcanized rubber bushings and is connected to each suspension strut by low friction linkages to improve the response characteristics of the suspension.



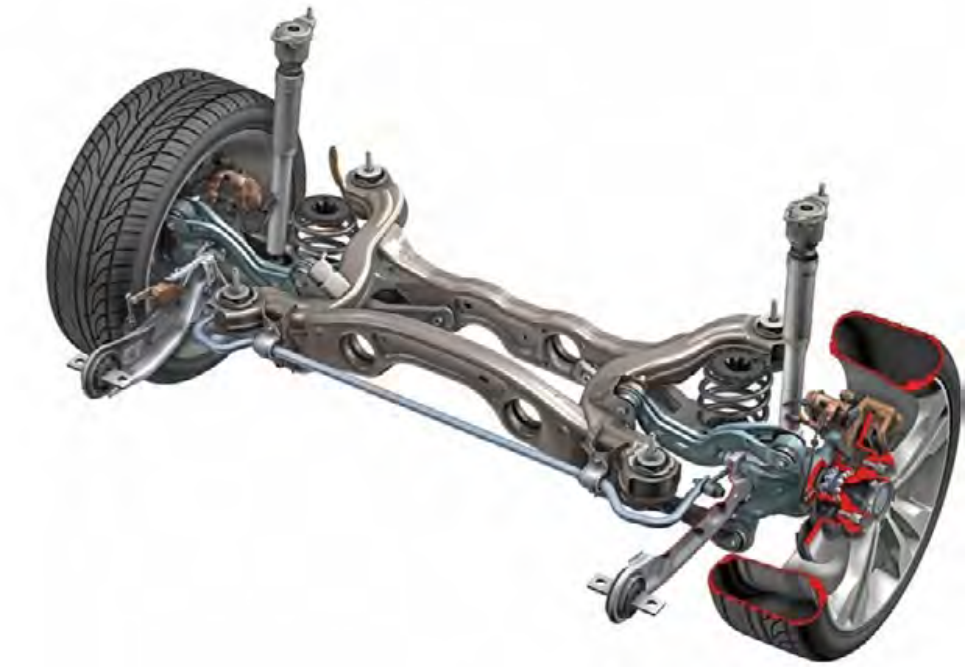
Road wheel movement is controlled by a lower forged aluminum transverse link, the suspension strut, and the steering inner and outer socket. The rack and pinion steering is behind the wheel center when viewed in the direction of travel.



1. Transverse Link
2. Stabilizer Bar
3. Suspension Strut
4. Steering Inner Socket
5. Steering Outer Socket
6. Sway Bar

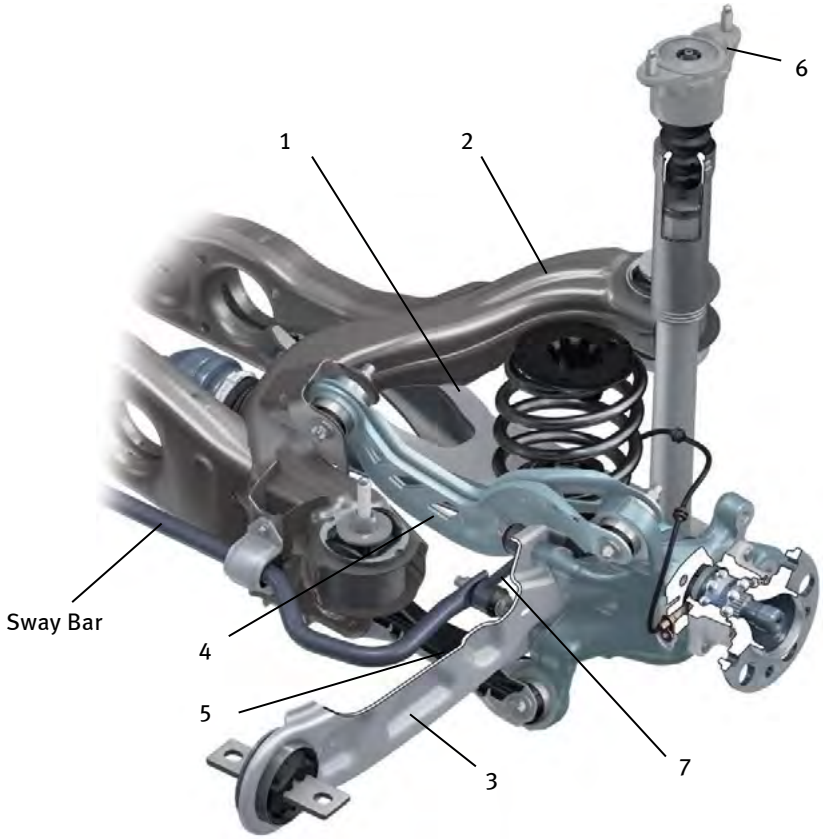
Rear Suspension

The four-link rear axle has three transverse control links and one trailing arm to absorb the forces at each rear wheel. This allows the longitudinal and lateral dynamics of the vehicle to be tuned selectively and independently of each other.



The wheel hub and rear lower link are made of aluminium to reduce the unsprung mass. In addition, large rubber bushings are used to optimize ride comfort.
Coil spring noise insulation between the body and rear axle is achieved by means of two elastomer shims.

The shock absorber is connected to the body by an aluminium top mount. This has a soft cardan bearing that reduces friction in the shock absorber and and improves response characteristics.
The rear axle sway bar is attached to the rear axle carrier using low friction vulcanized rubber bushings and is connected to the rear axle with conventional stabilizing rods.



1. Rear Lower Link
2. Rear Suspension Member
3. Trailing Arm
4. Front Upper Link
5. Front Lower Link
6. Top Mount
7. Stabilizing Rod

Alignment Angles

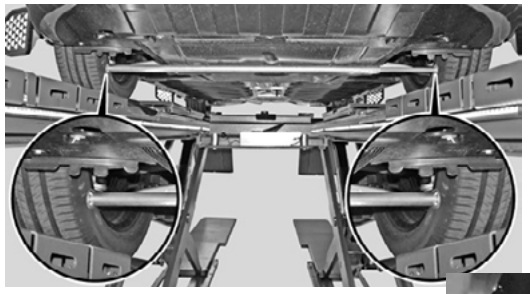
The following angles can be adjusted on QX30:

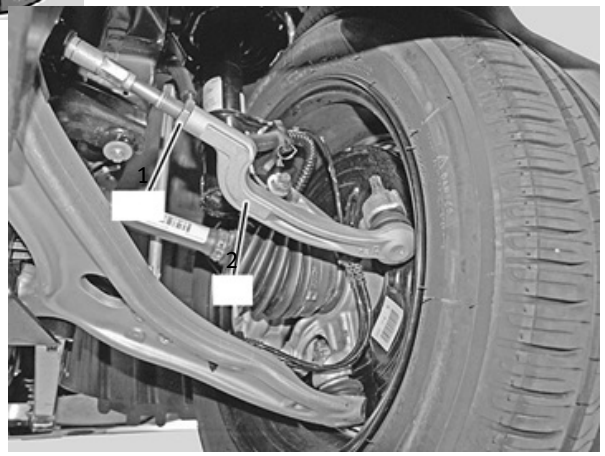
- Front Toe
- Front Camber
- Rear Toe

Refer to the service manual for alignment specifications and procedures.

Front Toe Adjustment

Center the front wheels and steering prior to adjustment. Loosen the left hand and right hand steering inner socket locking nuts and carry out the adjustment by rotating the inner sockets to adjust the length.



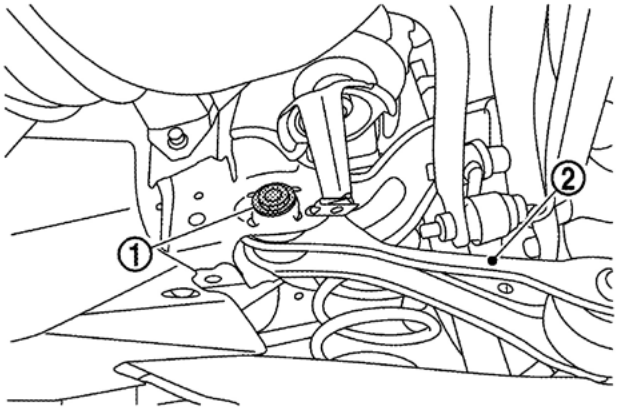


Service Point

If a front wheel is unintentionally curbed, it can damage the steering gear inner sockets. This will affect steering geometry and can cause steering pull.

Rear Toe Adjustment

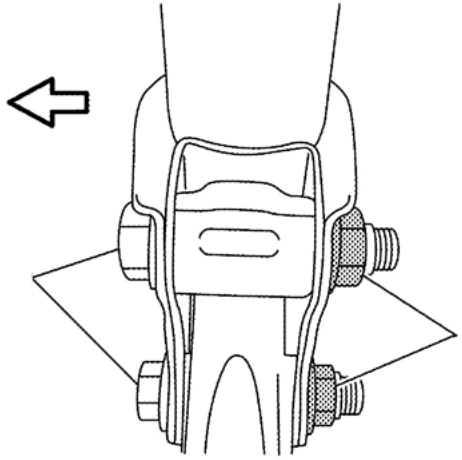
Loosen the left hand or right hand front lower link mounting nut and adjust by rotating the mounting bolt.



1. Mounting Nut and Bolt
2. Front Lower Link

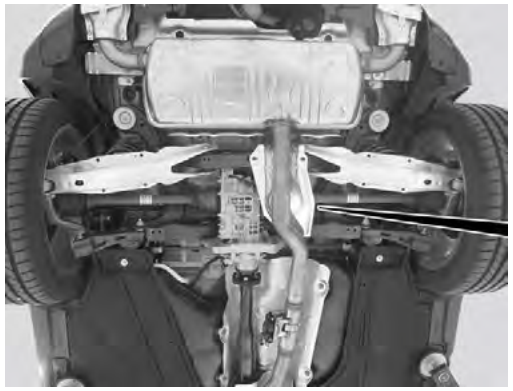
Front Camber Adjustment

Loosen the lower strut mounting bolts and adjust accordingly.



Tire Pressure Monitoring System

The system is made by Schrader and consists of tire pressure sensors, a control module, and the combination meter for the display of information. The control module is fitted to the underside of the vehicle, behind an exhaust heatshield.



System Operation

Each sensor consists of a pressure sensor, temperature sensor, high frequency (HF) transmitter, and a sensor battery with a service life of approximately ten years. Information sent to the antenna/receiver in the control unit is as follows:

- Internal temperature
- Internal pressure
- Rotational speed (sleep and wake-up signal)
- Direction of rotation (sensor location)
- Sensor ID

When stationary, the sensors report at a reduced rate. When a speed above 16 mph (25 km/h) is detected, the reporting rate increases.

The offset control IC recognizes the position of each sensor by:

- Front to rear (signal delay)
- Side to side (clockwise/counter clockwise wheel rotation and signal delay)

TPMS Tire Pressure Benchmark Reset

A new feature has been added to the TPMS system used on the QX30. Tire pressures for the front and rear wheels are stored in the system and used as comparative values. This comparative value is called the "benchmark." Current tire pressures are compared to the benchmark to determine pressure loss. Depending on the severity of pressure loss, various warning messages are displayed in the combination meter. This value should be reset whenever the tire pressures are adjusted. The benchmark pressure can be manually reset using the steering wheel controls and the vehicle information menu: Service › Tire Pressure › Tire Pressure Reset.

To keep the TPMS functioning properly, the reset operation must be performed in the following cases:

- When the tire pressures are adjusted
- When a tire or a wheel is replaced
- When the tires are rotated

TPMS setting resets the tire pressure and temperature benchmarks. Inflation should only be carried out when tires are cold.

This system does not have a ‘tire pressure filling support’ feature (EZ-Fill).

Sensor ID Registration

The Infiniti tire pressure sensor activation tool and CONSULT or the Signal Tech II can be used to activate or register new sensors.

Sensor ID registration should be performed under the following circumstances:

- Sensor replacement
- Control unit replacement
- Tire or road wheel replacement
- Performing a tire rotation

ID registration is not required if there is no change in TPMS pressure sensor.

TPMS Manufacturer	Software Code	Affected Models
Schrader	SEL-WAL	All QX30 models
Continental	CONTI-CMF	All other Infiniti models

Auto-learn

Should the tool be unavailable, the system initiates an auto-learn procedure every time the vehicle is parked for 19 minutes or more.
The auto-learn process is completed once the vehicle is driven above 16 mph (25 km/h), at which point any warning indicators will be extinguished. Within ten minutes of achieving a road speed of 25 mph (40 km/h) or more, the individual tire pressures and temperatures are available for display.

Service Points

There are two sensor part numbers, depending on whether steel or alloy wheels are fitted. Steel wheel sensors have longer valve stems and protrude if fitted to alloy wheels.
To prevent sensor damage when replacing a tire, undo the sensor securing nut and allow the sensor to drop into the old tire before removing from the wheel.
Always use a new seal and securing nut when refitting the sensor.
Inflating the new tire to the correct pressure will erase any stored DTCs and messages.

NOTE: Unlike other Infiniti vehicles, the QX30 benchmark pressure is not set by the factory. It is important at pre-delivery inspection (PDI) to check and adjust the tire pressures prior to manually resetting the benchmark pressure via the steering wheel vehicle information menu.

Tires

Tire options and specification are shown in the table below.

Tire size	Pattern	Type	Supplier
235/50R18 97V	Summer	Run Flat	Continental
235/50R18 97H	All Season		Continental
235/45R19 95V	Summer		Goodyear

Tires marked ‘MO’ or 'MOE'are specifically designed to complement the suspension and handling characteristics of QX30.
Driving distance on a deflated run flat tire should be limited to approximately 50 miles (partially laden) and approximately 18 miles (fully laden) and reduced further according to average road speed, road conditions, and outside temperature. The vehicle speed must not exceed 50 mph.

Puncture Repair

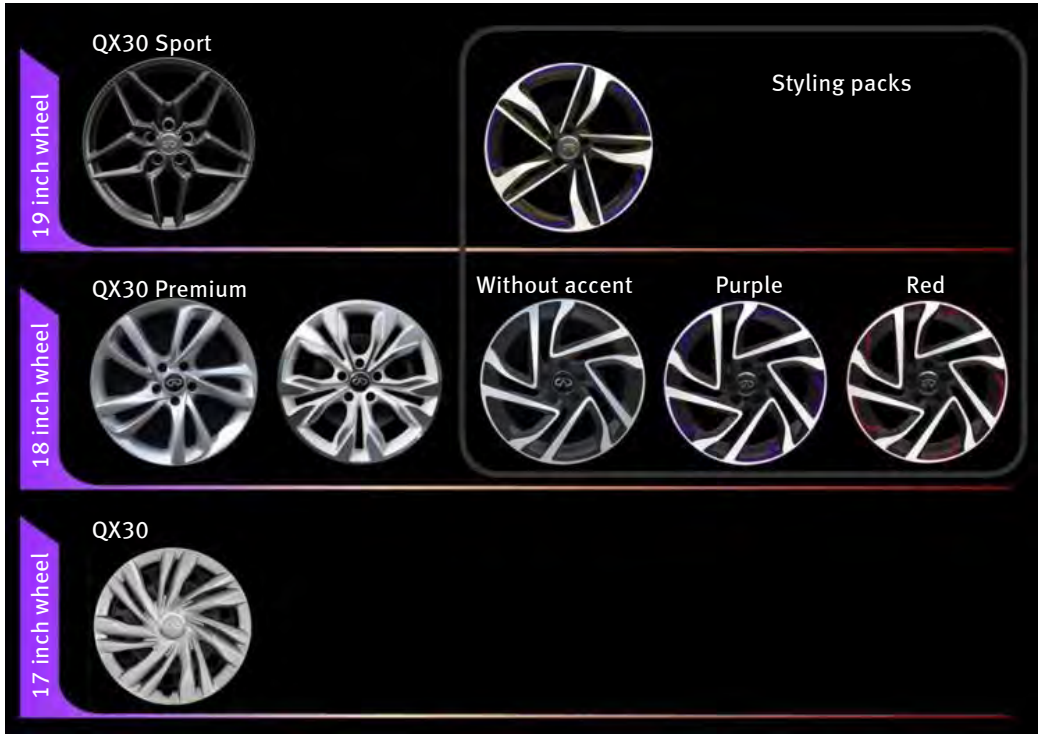
No full size or emergency spare is available on QX30. Always refer to the owner’s manual information on maximum recommended speed and distance following a puncture warning with MOE or Run Flat tires.

Snow Chains

Snow chains are not recommended for use on the alloy wheels and tires for QX30.

Wheels

The following wheel sizes, specification, and style are available.



Service Point

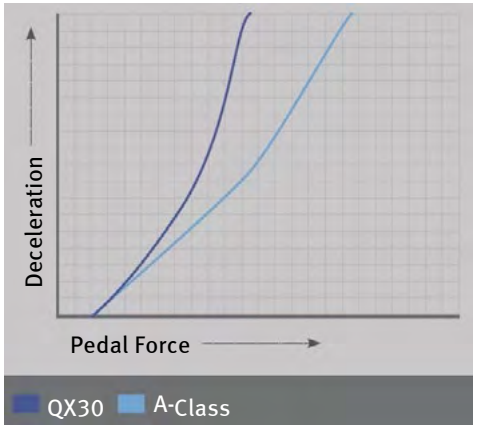
While other Infiniti vehicles feature wheel hub studs and tapered wheel nuts, the QX30 uses 5 wheel bolts with conical seats to secure each wheel to its wheel hub.
Wheel bolt tightening torque for all Infiniti QX30 vehicles is 82 - 103 ft-lb (117 - 140 Nm). This is a higher value than other Infiniti models.
The conical wheel bolt seat angle is different from other Infiniti models.
Do not install wheels from other Infiniti models and always check the application when installing aftermarket wheels.

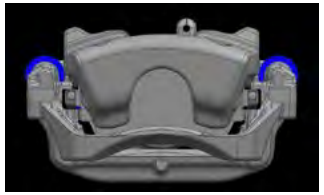
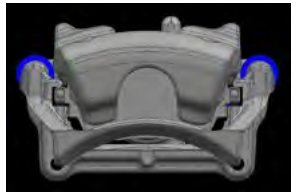
Accent Wheels

18- and 19-inch accent wheels incorporate a laser cutting procedure in the paint application. The chosen accent color forms the primer coat to which the base coat is applied. The wheels are then machined to reveal the alloy surface in the normal manner. A final precision laser etching process reveals the accent color where required to a minimum line width of 0.3 mm. The whole wheel is then lacquered to compete the process.

Brake System

The QX30 hydraulic brake system is diagonally split utilizing a master cylinder with a 10" (25.4 cm) servo booster with a braking assistance ratio of 7.5:1. The system incorporates a feature known as 'Rise-up Brakes'. When pressed lightly, the pedal feel and brake performance match the pressure on the pedal. When pushed harder and faster however, the braking force increases exponentially to maximize braking performance. The disc and caliper specifications and options are shown below.



Small	Large	Sport
		
		

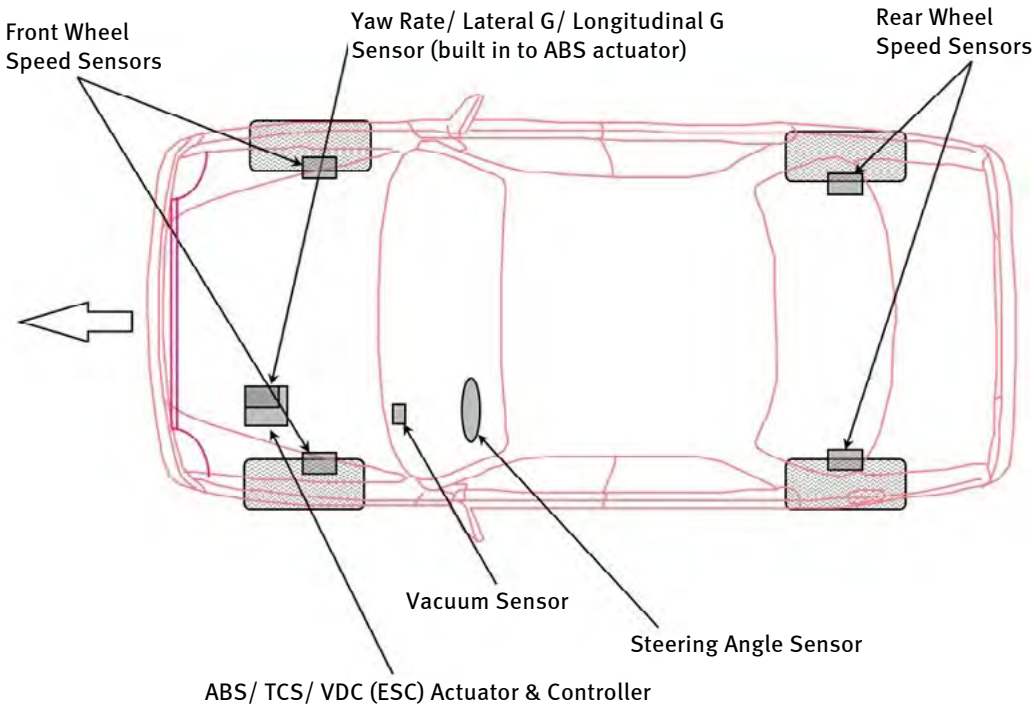
Caliper identification is as follows:

	Front Disc	Front Caliper
Small (1.6L Engines)	295 x 28t, Vented	60 mm Piston, Floating
Large (2.0L Engines)	320 x 30t, Vented	60 mm Piston, Floating
Sport	320 x 30t, Vented, Drilled	60 mm Piston, Floating

	Rear Disc	Rear Caliper
Small	295 x 1.0, Solid	34 mm Piston, Floating and Electric Parking Brake
Large	320 x 2.2, Vented	38 mm Piston, Floating and Electric Parking Brake

Brake Control System

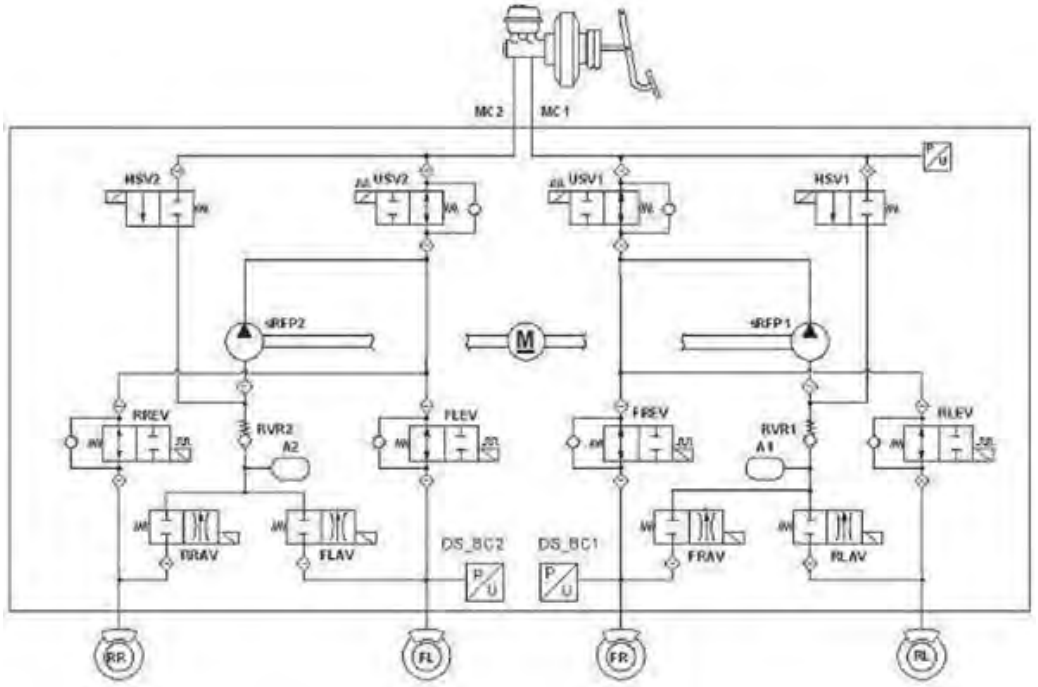
QX30 is equipped with a Bosch 9 ABS/TCS/ESP system.



The steering wheel angle sensor is integrated into the steering column module. This module also contains the horn contact, air bag clock spring, and combination switch unit, and can only be replaced as a complete unit.
The control unit, hydraulic valve block, ABS pump, and yaw sensor are also contained in a single unit. Two versions are available, depending on cruise control fitment and application type.

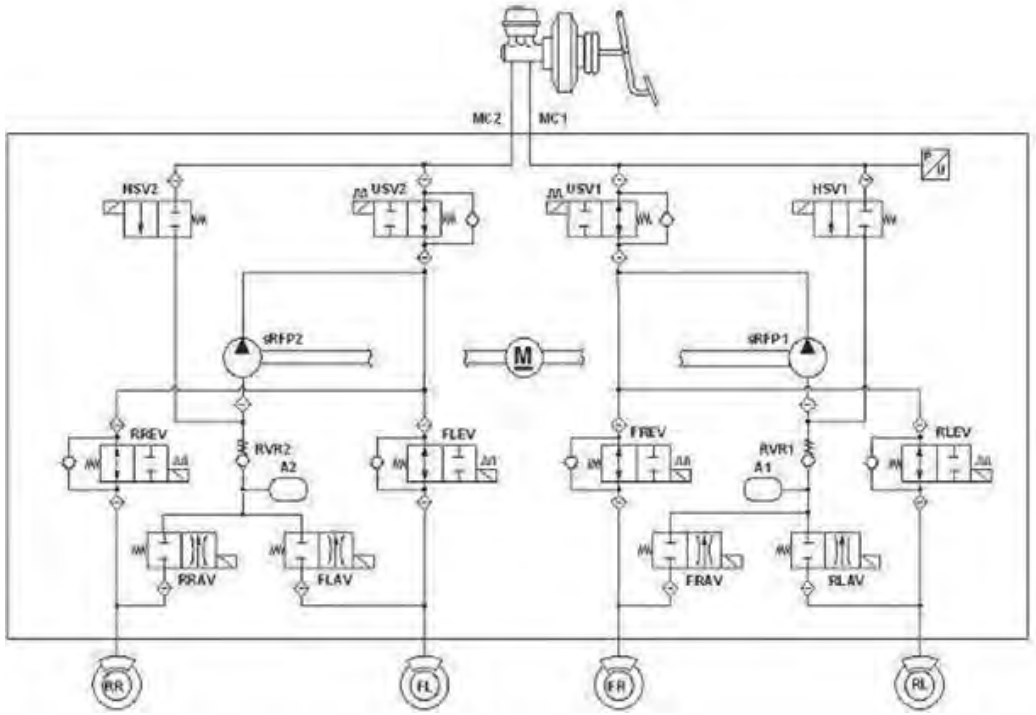
Bosch 9 ESP-CPI3 (with Intelligent Cruise Control ICC)

- 1 x Master cylinder pressure sensor (driver application)
- 1 x Hydraulic module RH front wheel pressure sensor (system feedback)
- 1 x Hydraulic module LH front wheel pressure sensor (system feedback)
- ICC logic contained in long range radar control unit (LRR)



Bosch 9 ESP-CPI1 (with Normal Cruise Control)

- 1 x Master cylinder pressure sensor (driver application)
- Cruise control logic contained in Bosch 9ESP control unit



System Overview

The Bosch 9 system is capable of the following functions.

- ABS - Anti lock braking system controls the brakes so the wheels do not lock during hard braking or when braking on slippery surfaces.
- EBD – Electronic brake force distribution limits the rear brake pressure under heavy braking to prevent rear wheel lock up.
- ESP – Electronic stability program uses the vehicle brakes and engine output to control vehicle stability and direction. (Also known as VDC).
- ETS – Electronic traction control, otherwise known as TCS, limits wheel spin under acceleration and remains active when ESP is switched off.
- 4ETS – Same as above for AWD vehicles.
- HSA – Hill start assist holds the hydraulic brakes on momentarily when pulling away on a gradient.
- FEB – Forward emergency braking utilizes a front facing radar to monitor forward car movements and apply braking in an emergency situation.

These functions require no further explanation as they are present on other Infiniti models. A few extra notes are provided on HSA and FEB however.

Hill Start Assist

HSA prevents the vehicle from rolling backwards while driving off up-hill on an inclined surface. Main requirements for activation are:

- Vehicle stationary
- Brake pressure created by the driver

The brake pressure is held for a maximum of one second before it is released. This allows the driver time to transfer from the brake pedal to accelerator to pull away smoothly without fear of vehicle roll-back.

Forward Emergency Braking

The forward emergency braking (FEB) autonomous braking function is standard equipment on all QX30s and requires either the low specification (non ICC) or higher specification (ICC) front radar to help reduce the risk of collision with the vehicle in front. FEB is also referred to as forward collision avoidance (FCA) in some literature.

Non-ICC Radar

Autonomous braking function is available in the following speed ranges:

- 4-65 mph (7-105 km/h) for moving objects
- 4-30 mph (7 -50 km/h) for stationary objects

The radar sensor requires no adjustment or calibration if removed or replaced.

ICC Radar

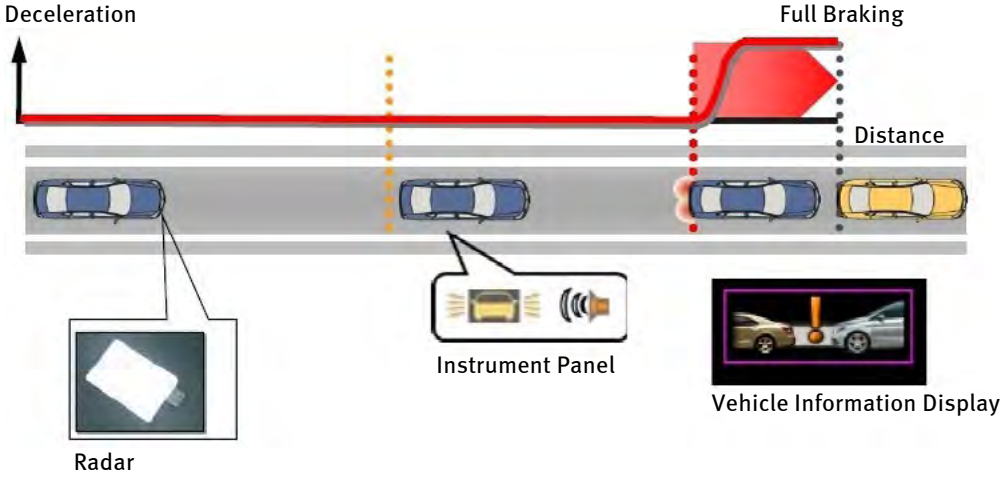
Autonomous braking function available in the following speed ranges:

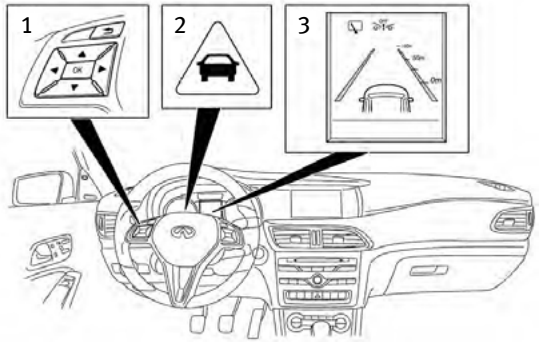
- 4-125 mph (7-200 km/h) for moving objects
- 4-30 mph (7 -50 km/h) for stationary objects

The radar sensor requires adjustment or calibration if removed or replaced. FEB can be switched off by the driver using the vehicle display sub menu.

A number of technologies work together in emergency braking situations:

- Forward collision warning function (FCW) - Visually and audibally warns the driver of a shortening distance.
- Forward emergency braking function (FEB) – Full autonomous braking initiated in critical situations if driver fails to brake. (Brake lights flash).
- Brake assist function (BA) – If the driver does brake, the system applies additional braking force up to the ABS threshold.





1. Steering Wheel-mounted Controls
2. Distance Warning Light
3. Forward Emergency Braking Display

Other Functionality

Included within the operation of the main functions of the Bosch 9 system are a number of supporting sub functions.

Main Function	Sub Function	Sub Function Title	Function Description
ABS Anti-lock Braking System	BSC	Brake Slip Control	Controls the slip demand of the front outside wheel when cornering (oversteer interventions only). All other wheels are torque controlled.
	DTC	Drag Torque Control	Sudden throttle closures or downshifting on low friction road surfaces when braking, can cause driven wheels to exert too high an engine drag torque. This leads to an unstable understeer or oversteer situation. DTC reduces the engine braking slip on the driven wheels by slightly increasing the engine torque, helping to maintain vehicle stability and steerablity.
TCS Traction Control System	PTC	Powertrain Torque Control	PTC is the area of TCS that modifies engine torque if too much wheel slip is detected when the driver is accelerating the vehicle.
	BTC	Brake Torque Control	BTC is the area of TCS that uses the ABS hydraulic valve block and pump to alter the torque applied to individual driven wheels when wheel slip occurs.
	BTM	Brake Temperature Model	Calculated brake temperature based on system brake pressure and time. Some Bosch 9 sub system functionality is downgraded or temporarily switched off if the temperature threshold is exceeded.
ESP Electronic Stability Program	VDC	Vehicle Dynamics Control	VDC is the area of ESP involved in the vehicle's yaw management by comparing the measured yaw rate with the driver's wishes. Stability control of excess understeer/oversteer or wheel slip situations is governed through brake pressure modulation which can alter the forces acting on individual wheels, and if performed asymmetrically, can induce a yaw moment about a vehicle's vertical axis.
	TSM	Trailer Sway Mitigation	ESP intervenes with the use of the ABS hydraulic valve block and pump when unexpected trailer sway is measured around the vehicles vertical axis.
	CBC	Corner Brake Control	When braking in a curve, forces on the rear axle are reduced, leading to less rear wheel grip and a possibility of oversteer. At the same time, a reduction in forces on the curve inside wheels can lead to increased brake slip and an early activation of ABS control. To counteract this yaw moment, the difference in brake forces between the curves inside and outside wheels is increased.
	ROM	Roll-over Mitigation	ROM attempts to avoid a vehicle roll-over situation by actively braking single wheels to limit the lateral acceleration.

Main Function	Sub Function	Sub Function Title	Function Description
ESP Electronic Stability Program (continued)	DST	Dynamic Steering Control	During an oversteer driving situation, DST assists the driver in stabilizing the vehicle. A calculated steering torque offset is sent via CAN to the electronic power steering (EPS) which generates a counter steering angle aimed at assisting the driver in achieving a perfect steering correction. The driver has a decisive role in this process. The stabilizing effect is only reached if the driver follows the applied torque offset and doesn't try to override it.
	DWT-B	Differential Wheel Torque by Brake	During cornering and changes in vehicle direction, DWT-B provides subtle braking interventions to the inner wheels to provide the driver with an impression of enhanced vehicle agility through a direct steering experience. (Similar to Active Understeer Control AUC).
	ESP-OFF	ESP-OFF Operation	ESP can only be switched off via the vehicle information display sub menu structure. However the system remains active but with altered thresholds that allow higher body slip angles before intervention.
	ABP	Automatic Brake Prefill	ABP uses the ABS hydraulic unit to remove the air gap between each calipers brake pads and the accompanying rotating brake discs (rotors) thanks to a weak pressure build-up, prior to the driver pressing the brakes pedal. The brake response time and the stopping distance are thus reduced.
	EBP	Electronic Brake Prefill	EBP is an extension of APB and reduces the air gap of the wheel brake by applying the brakes after the driver releases the accelerator pedal suddenly due to an expected emergency brake situation. By actively pre-filling the brake-system, driver braking response time is reduced resulting in a shorter stopping distance.
	DB	Dry Braking	DB generates a low brake pressure independent of the driver. The function is active during windshield wiper operation and the pressure build-up takes place within fixed cycles. The purpose is to remove water and dirt from the brake disc.
	BAS	Brake Assist System	In an emergency braking situation, many drivers do not operate the brake pedal strong enough or far enough to reach the maximum possible vehicle deceleration. BAS detects an emergency braking situation by the speed of pressure build-up in the master cylinder and applies additional braking force via the ABS hydraulic unit until the threshold of full ABS activation is reached.
	HBB	Hydraulic Brake Boost	Due to temporarily low vacuum levels or design features, the pneumatic amplification of the hydraulic braking pressure via the vacuum brake booster (servo) may be limited. HBB ensures that the driver's brake pedal force input is amplified in all operating conditions.

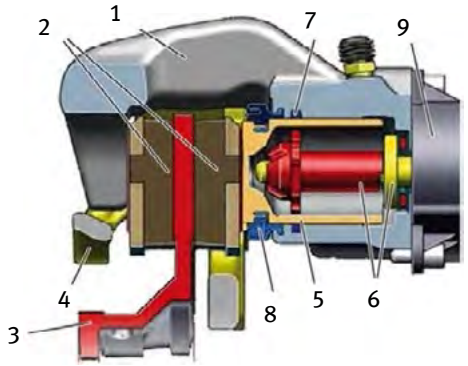
Main Function	Sub Function	Sub Function Title	Function Description
ESP Electronic Stability Program (continued)	HBC	Hydraulic Boost Failure Compensation	HBC supplements or replaces the actuation of brake pedal force amplification if the brake vacuum booster (servo) fails.
	CDP	Controlled Deceleration of Parking Brake	In an emergency situation, the electronic parking brake can be activated to assist in bringing the vehicle to rest.
	ABL	Adaptive Brake Light	To warn following traffic that the driver is carrying out emergency braking, the stop lamp is actuated in flashing mode in such situations and the hazard warning flasher system is automatically switched on when stationary.
	CCA	Dynamometer Function	CCA allows rolling road vehicle brake testing and chassis dynamometer work to be performed without intervention of ABS/TCS/ESP.

Electric Parking Brake

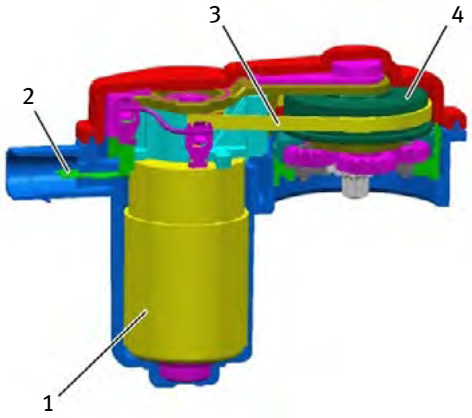
The electric parking brake (EPB) system includes two electric parking brake actuators fitted to the rear brake calipers, a parking brake switch located under the rotary lighting switch, and a parking brake control unit fitted in the rear luggage compartment.

Parking Brake Actuator

The following images show the internal workings of the parking brake actuator assembly.



1. Caliper
2. Pads
3. Disc (Rotor)
4. Bracket
5. Piston
6. Spindle Assembly
7. Seal
8. Dust Seal
9. Motor



1. Motor
2. Electrical Connector
3. Drive Belt
4. Epicyclic Gear Train

System Operation

The EPB control unit monitors the rise in electrical current as the rear brake pads clamp the rear rotor discs. Clamping is stopped when the electrical current reaches a set threshold.

- Pushing the parking brake switch applies the parking brake up to a vehicle speed of 2 mph (3 km/h).
- Pulling the parking brake switch releases the parking brake.
- Automatic Release function on accelerator pedal application.

To prevent vehicle movement as the hot brakes cool, the system can reapply the parking brake within 30 minutes of the vehicle being parked. The parking brake is released automatically when in D or R. However, to prevent rolling down hill, if the driver's door is opened when in D or R, the parking brake is automatically applied and the transmission P range is selected.

Emergency Mode

At speeds above 2.5 mph (4 km/h), if the parking brake switch is pressed and held:

- The ABS reduces excess speed by ABS pump activation to build braking pressure at the calipers.
- At and below 2.5 mph (4 km/h), the parking brake is applied.
- If the switch is released at any point, the parking brake is released.

Fail Safe

If the system fails with the parking brake applied, the piston spindle assemblies must be wound back manually using a 7 mm hex wrench.

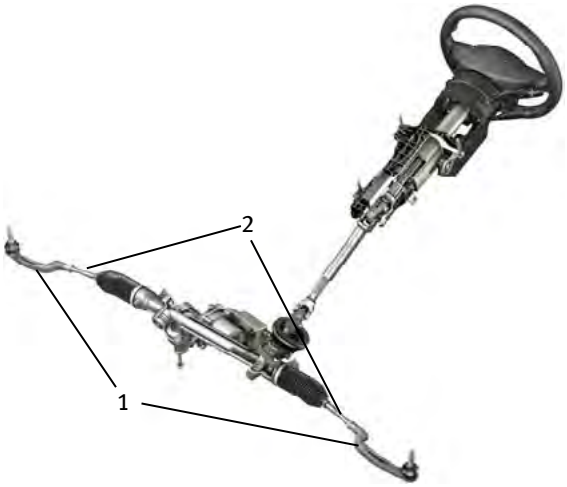
Service Points

When performing brake pad replacement, a service position can be activated to fully retract the brake caliper pistons. This also prevents the system from inadvertently reapplying the parking brake while working on the system. The service position can be activated with or without CONSULT-III plus. To manually set the service position, perform the following:

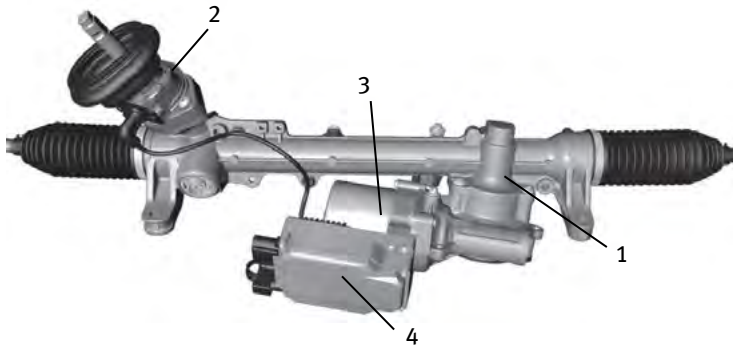
- Set ignition to the accessory position
- Make sure the combination meter displays the mileage screen
- Press and hold the steering wheel phone switch and then press the OK button for five seconds.
- Brake service options are displayed
- Select the correct option and press OK
- Press OK to return to normal operation

Steering

QX30 is equipped with a fully electric, speed sensitive steering system. It enables the Intelligent Parking Assist feature and has integration with many other systems including stop/start.



1. Inner Socket
2. Outer Socket



1. Rack and Pinion Steering Gear
2. Torque Sensor
3. Actuator Motor
4. Control Unit

Compared to a conventional hydraulic power steering system, QX30's electric power steering has the following advantages:

- Improved steering feel and flexibility of control
- Better fuel economy (no steering pump)
- No fluid and associated pipework required (eliminates leaks)
- Compact design
- Speed dependent steering force assistance
- Steering return control
- Side-pull compensation
- Communication and diagnosis through CONSULT-III plus

The steering column is a collapsible type and also features telescopic and tilt convenience.

The steering gear comes as a self-contained unit comprising a rack and pinion assembly, torque sensor, actuator motor, and control unit.

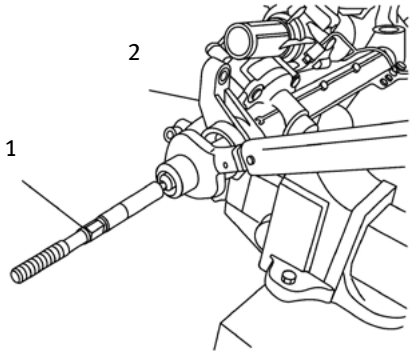
The steering angle sensor is part of the steering column control unit. Speed sensitive steering force assistance is provided by the actuator motor acting directly on the rack and pinion steering gear, depending on the driver input feedback from the torque sensor.

Counter-steering stabilization logic is incorporated in the steering ECU, and complements braking and engine intervention elements of ESP.

Service Point

Curbing the front wheels can damage the steering gear inner sockets. This affects steering geometry and can cause steering pull.

Inner sockets can be changed as shown.



Two steering wheels styles are offered, depending on model.

QX30 Base and Premium

QX30 Sport

Steering ratios are fixed and different for QX30 FWD and QX30 AWD as follows:

	Ratio (mm/rev)	Turns Lock to Lock	Half Stroke (mm)
QX30 Base, Prem.	61.26	2.51	76.8
QX30 AWD	55.14	2.78	76.8

Fail Safe

If excessive use is detected, power assistance is reduced to prevent overheating, and the steering operation becomes heavier. As the temperature drops, power assistance level returns to normal.
Should the system fail electrically, the system reverts to conventional non-assisted mechanical steering.
Steering assistance is present when in a stop/start engine cycle (reduced assistance mode).

Workshop Mode

Steering assistance is also available if the vehicle is moved with the ignition on.

EPS Control Unit Replacement

The following must be performed with CONSULT-III plus:

- Steering center position resetting
- Reset of coding
- EPS torque sensor calibration
- Relearning

Service Points

When performing diagnosis, note that any past DTCs stored in the memory may have an effect on system functionality.

Regarding possible vehicle pull issues, after normal checks have been confirmed (tire pressures, brakes not binding, etc.), drive the vehicle for approximately 18 miles (30 km) at speeds around 35 mph (60 km/h). After this, the vehicle has made enough readings to learn the steering angle offset.

Be aware that QX30 base and premium, and QX30 AWD steering rack assemblies look identical and are physically interchangeable. The ECU contains all steering maps and auto configures to the vehicle it is installed into, regardless if the wrong steering rack is installed.
However, if this occurs, VDC issues are likely as the ECU will assume either an oversteer or understeer condition, depending the vehicle and rack installed.

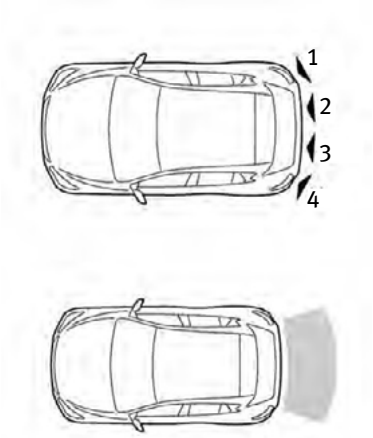
The steering rack motor can be replaced as a separate assembly.
If either the steering rack, motor, or steering ECU are replaced, the steering torque sensor will require re-learning.

Sonar System and Park Assist

Four, ten, or twelve parking sensors are installed in the front and rear bumpers, depending on the parking sonar system.

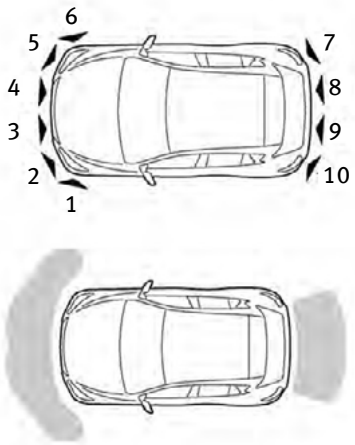
System Types

Type A (Rear Sonar Only)



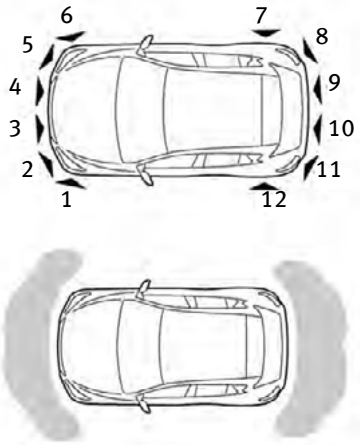
When in reverse, the system visually warns of rear obstacles from approximately 4 feet (1.2 metres), and audibly from 1 foot (30 cm). The intermittent tone stops after three seconds if the obstacle is detected by a corner sensor only, and the distance does not change.

Type B (Front and Rear Sonar)



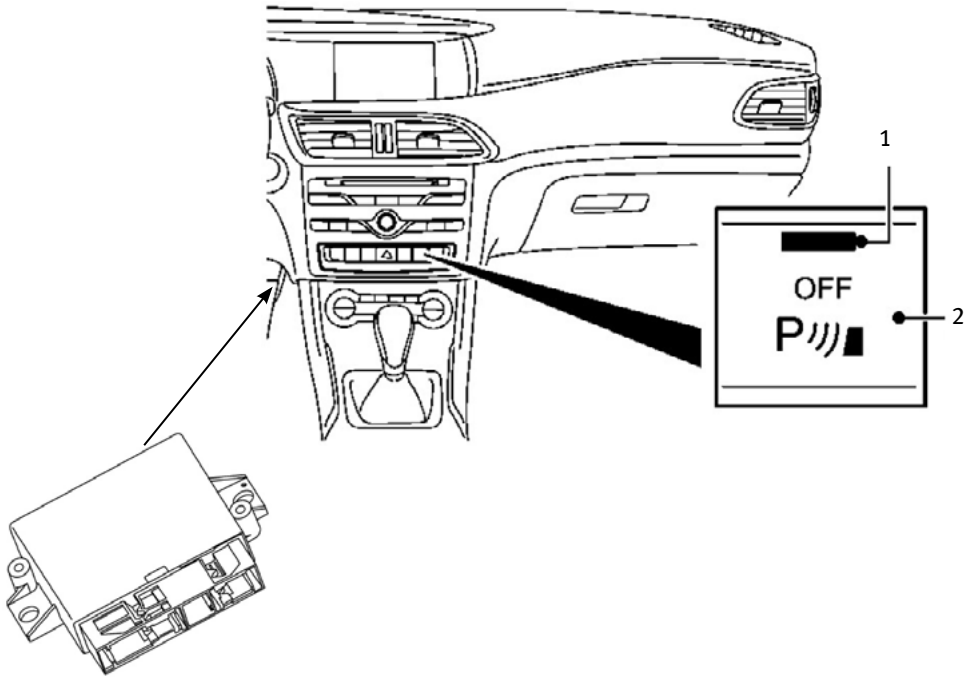
When in a forward gear, the system visually warns of front obstacles from approximately 3.3 feet (1.0 meter), and audibly from 1 foot (30 cm). When in reverse, the system warns of both front and rear obstacles.

Type C (Park Assist with Front and Rear Sonar)



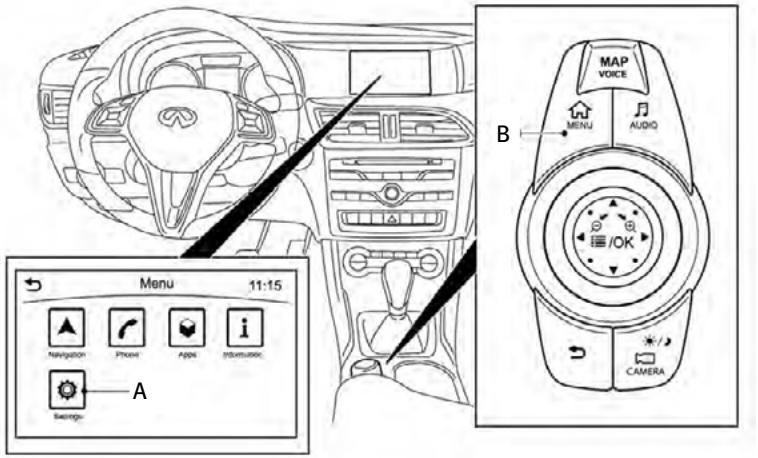
Same as type B, but with the additional intelligent parking assist feature.

There is one version of the sonar control unit available that requires configuration. It is fitted under and behind the air conditioning controller on the steering wheel side of the transmission tunnel.
The parking assist system OFF switch is centrally-mounted. System settings can be adjusted using the Infiniti controller and central screen. The system defaults to ON with each ignition cycle.



1. Red LED (Lamp ON = System OFF)
2. Button Switch

Parking Sensor Settings

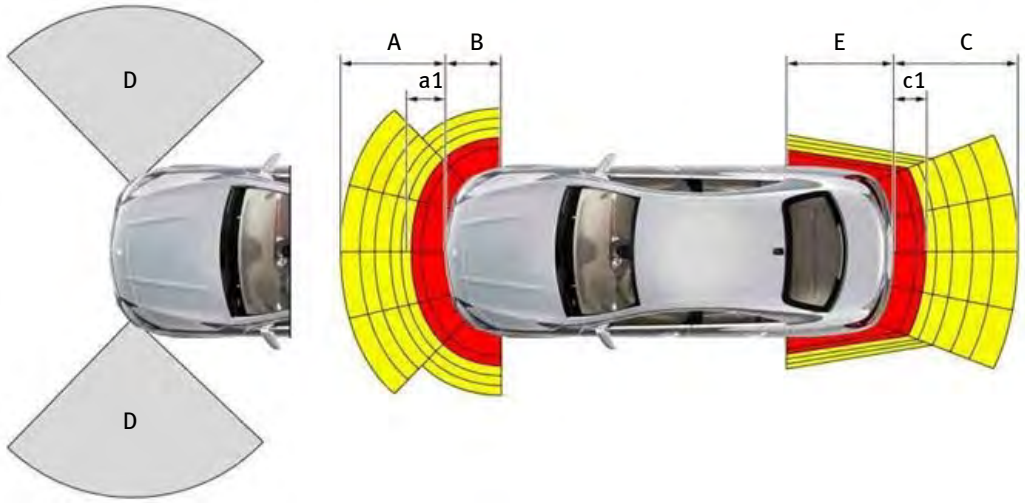


The following parking sensor settings can be changed by using the MENU button (B) on the Infiniti controller and selecting Settings (A).

- Parking Sensor Sensitivity
- Parking Sensor Volume

Sonar Ranges

Sonar ranges for both front and rear parking and park assist are shown below.
Yellow represents the displayed zones. Red represents the audible zones.

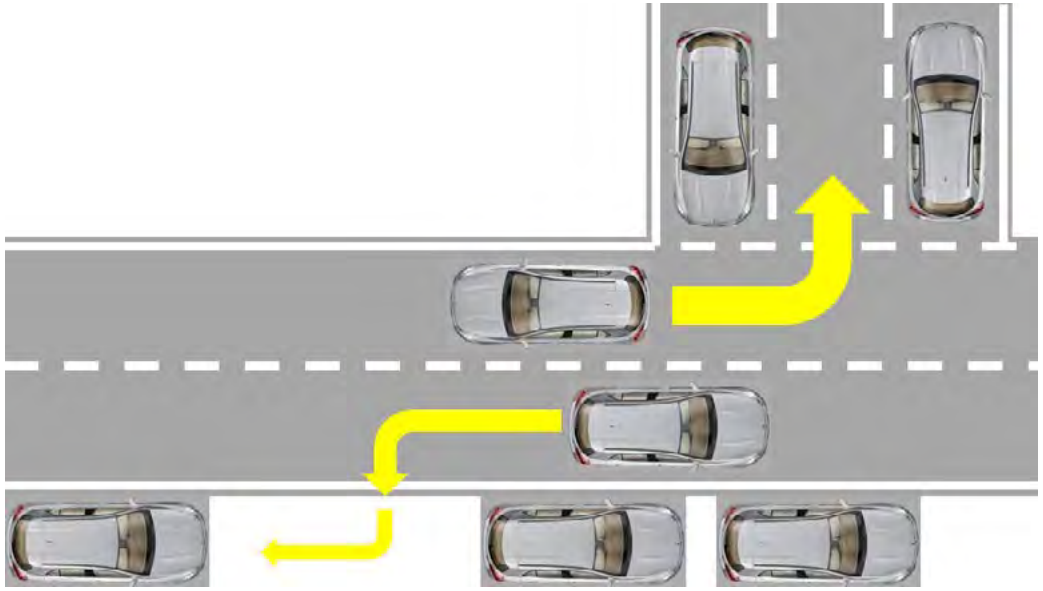


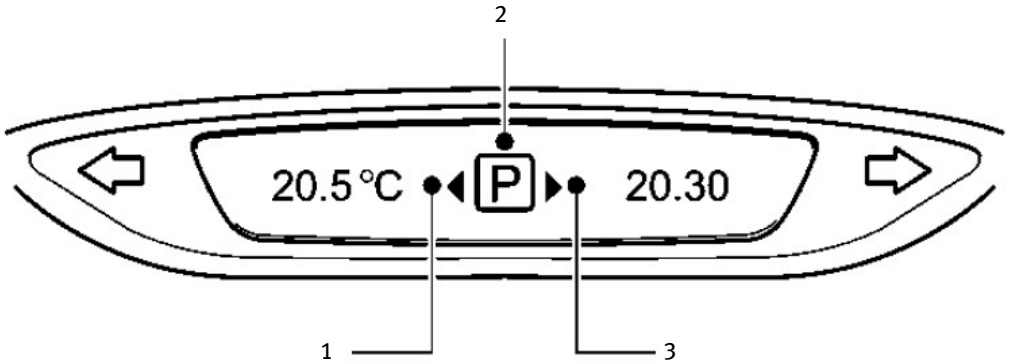
A. Front Monitoring Range from 3.3 feet (1.0 meter)
B. Front Corner Protection
C. Rear Monitoring Range from 4 feet (1.2 meters)
a1. Front Audible Range
c1. Rear Audible Range
D. Parking Space Detection up to 50 feet (15 meters)
E. Rear Corner Protection

Intelligent Parking Assist

Intelligent Parking Assist (IPA) is an ultrasound electronic parking aid that automatically identifies potential parking spaces that are either parallel, or at right angles to the direction of travel and on both sides of the vehicle. All suitable parking spaces are indicated in the upper meter and the vehicle information display. Active steering intervention assists parking and exiting a parking space. The driver remains responsible for road speed and braking operations.
IPA is activated automatically when driving forward. The system is operational at speeds of up to approximately 19 mph (30 km/h). While in operation, IPA only detects parking spaces that are:

- Parallel or at right angles to the direction of travel.
- Parallel to the direction of travel and are at least 5 ft. (1.5 m) wide.
- Parallel to the direction of travel and at least 3.2 ft. (1.0 m) longer than your vehicle.
- At right angles to the direction of travel and at least 3.2 ft. (1.0 m) wider than your vehicle.





The parking symbol (2) is displayed, with a left or right arrow, in the upper instrument panel whenever a suitable parking space has been detected, and remains displayed until the vehicle has been driven approximately 50 feet (15 m) away from it. The left (1) or right (3) arrows appear depending on the vehicle side of the parking space. Passenger side parking spaces are displayed by default. Parking spaces on the driver's side are displayed only when the driver's side turn signal is activated, and must remain on until the driver confirms IPA use.
The assisted parking function is activated by simply coming to rest and selecting reverse. The 'Start Park Assist' message is displayed on the vehicle information display. The driver can select yes/no by pressing the steering wheel 'OK' or 'Back' button and and follow the on-screen prompts.

System Diagnosis

CONSULT-III plus can be used to observe Data Monitor changes in system operation. Work Support allows a technician to check the functionality of individual sensors.

Sonar Control Unit Replacement

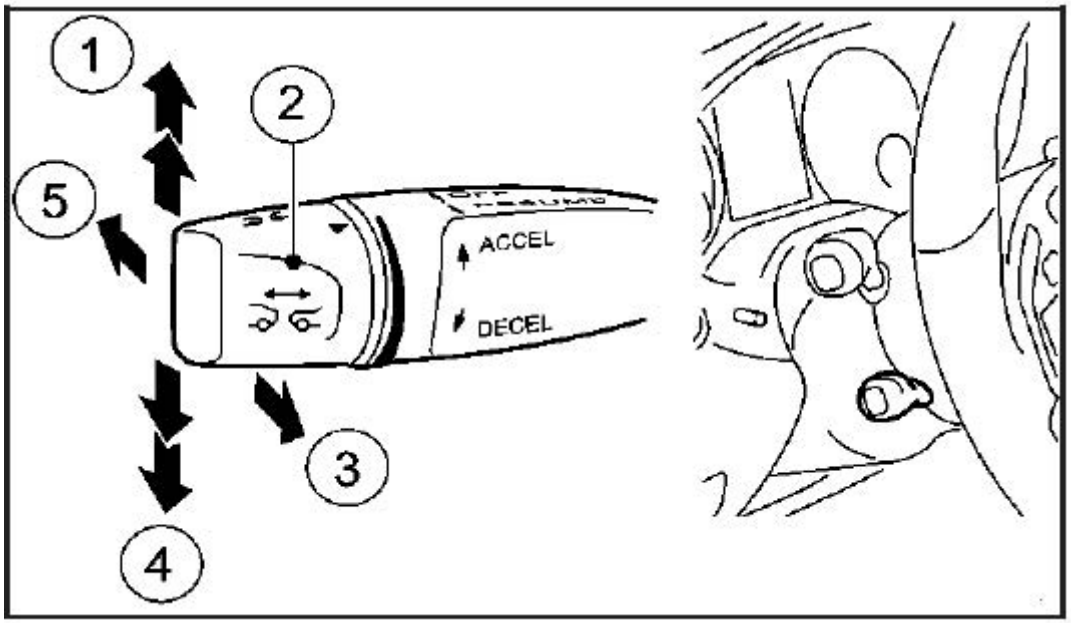
CONSULT-III plus requires a network connection to download the appropriate configuration data and vehicle specification. This data is then written to the sonar control unit in the normal fashion.

Automatic Speed Control

Automatic speed control is standard and works in combination with other vehicle safety and braking systems, when equipped.

- Automatic Speed Control Device (ASCD)
- Forward Emergency Braking (FEB)
- Adaptive Brake Assistant (BA)

The steering column-mounted cruise control stalk (lever) is used to manage the automatic speed control and speed limiting functions.



1, 3, or 4 Turn ON and set speed

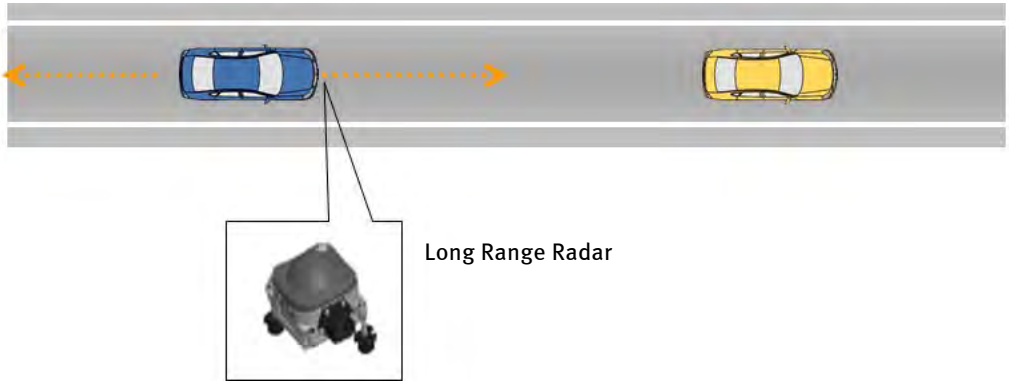
1. Accelerate and set
2. Set following distance (rotate to change)
3. Store current speed or call up last stored speed
4. Decelerate and set
5. Deactivate cruise control

NOTE: Switch shown above is for Intelligent Cruise Control. Automatic speed control switch functions the same without distance setting.

Intelligent Cruise Control

The intelligent cruise control (ICC) system helps the driver sustain a set speed and distance to a preceding vehicle. If the preceding vehicle comes to a stop, the system brings the vehicle to a standstill. When the preceding vehicle accelerates from a standstill, ICC supports a return to acceleration by a single tap of a column switch or a reapplication of the accelerator pedal.

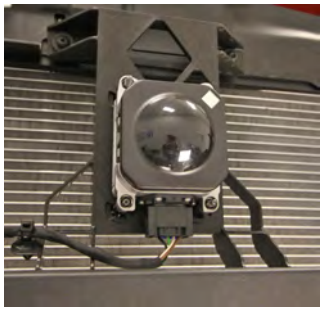
The system operates up to 125 mph (200 km/h).



Long Range Radar Alignment

An Intelligent cruise control (ICC) sensor is located behind the front Infiniti emblem in the radiator trim. The sensor contains:

- Control Unit
- Long Range Radar Sensor (LRR)



Detection range and frequency is as follows:

- 100 feet (30 m) for a detection angle of 30°
- 100 feet to 330 feet (30 m to 100 m) for a detection angle of 16°
- 330 feet to 660 feet (100 m to 200 m) for a detection angle of 12°
- Carrier frequency 77 GHz

Sensor alignment is required using CONSULT-III plus whenever the ICC sensor is removed, reinstalled, or replaced.
Two methods of alignment are provided in the service manual. The SST below supports alignment.

SST J-51093

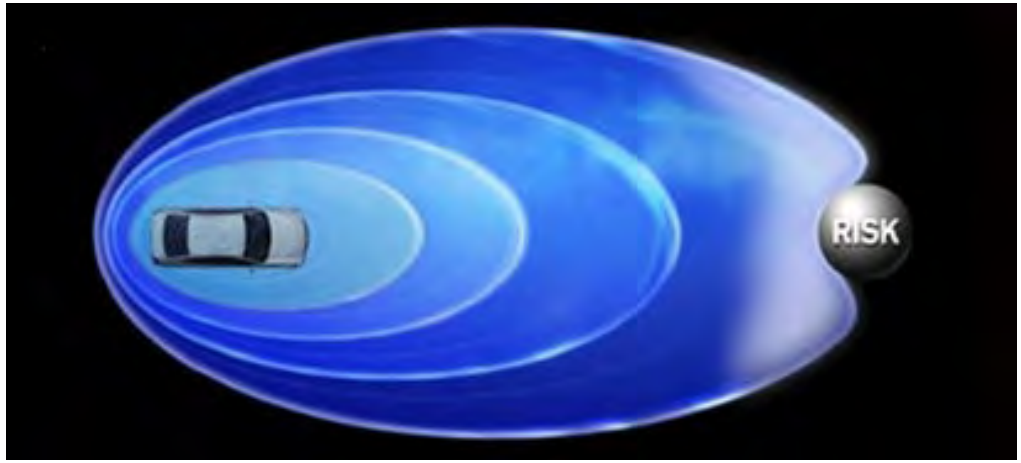
SST 1-20-2721-1-IF

Driver Assistance Systems

Driver assistance systems include a range of driving safety systems that work actively and passively, depending on vehicle system configuration. These include:

- Lane Departure Warning (LDW)
- Blind Spot Warning (BSW)
- Forward Emergency Braking (FEB)
- Rearview camera

Unlike other Infiniti models, there is no DAS or ADAS specific control unit on the QX30. DAS is decentralized on QX30, relying on CAN communication between participating system control units and components using the electronic ignition switch (EIS) as a gateway for the transmission of information.



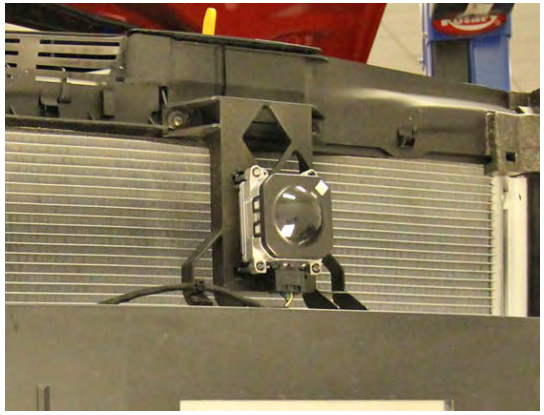
Components

The driver assistance components include:

- ICC sensor
- Distance sensor (non-ICC vehicles)
- Front camera unit
- Side radar LH/RH

ICC Sensor

Installed behind the front grille, the ICC sensor detects a vehicle ahead by using millimeter waves and has an extended range in support of ICC and forward emergency braking (FEB).
Radar reflected from a vehicle ahead is used to calculate distance and relative speed. The ICC sensor control unit transmits the presence or absence of a vehicle ahead, and its distance.



Distance Sensor (non-ICC vehicles)

Installed in the back of the front bumper grille, it detects a vehicle ahead by using millimeter waves in support of FEB.
Radar reflected from a vehicle ahead is used to calculate distance and relative speed. No adjustment is required if removed or replaced.

Front Camera Unit

The front camera unit detects lane markers and is located above the windshield glass. It supports:

- Lane Departure Warning (LDW)
- High Beam Assist (HBA)

Side Radar LH/RH

Installed behind the rear bumper, the side radars detect other vehicles in an adjacent lane in support of:

- Blind Spot Warning (BSW)

Lane Departure Warning

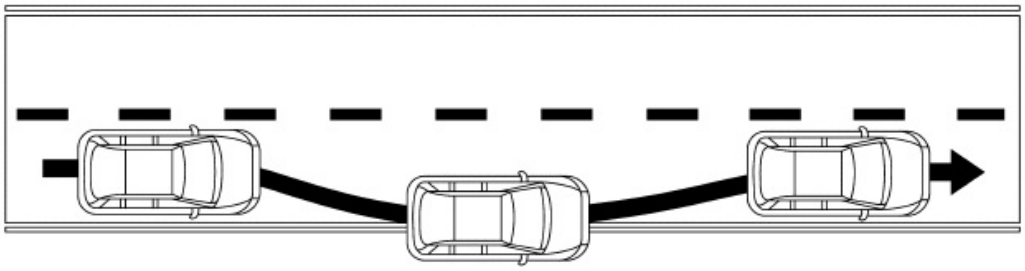
The front camera unit detects unintentional driving across lane markings and warns the driver by vibrating the steering wheel. Lane departure warning (LDW) can be switched ON/OFF via the vehicle information display menu.

The following operating modes are available for selection:

- Standard - Sensitivity increased (warnings issued earlier and more frequently)
- Adaptive - Sensitivity reduced (warnings issued later and less often).

System limitations/requirements include:

- From a vehicle speed of 37 mph (60 km/h)
- Recognizable lane markings are present
- Radius of curve is no less than 490 feet (150 m)
- Track width between 8 to 15 feet (2.5 to 4.6 m)



1. Vehicle in lane
2. Vehicle crosses outer lane - steering wheel vibration initiated
3. Driver steers back into lane

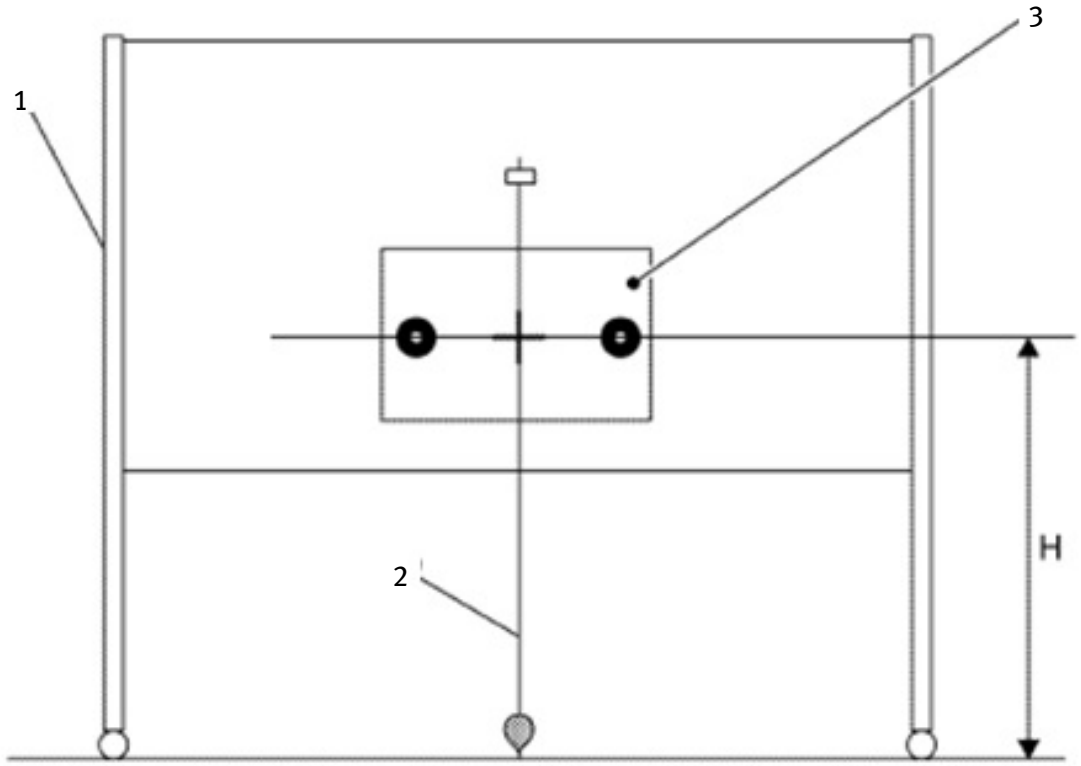
Blind Spot Warning

BSW monitors the rear and side areas of the vehicle using short range radar and if necessary, informs the driver that an intentional lane change (turn signal active) is not recommended.
BSW can be switched On/Off via the vehicle information display menu.
A visual warning is issued by the respective front door control module via the BSW warning indicator in the respective side mirror base.
While relevant data is evaluated by all of the rear radar sensors, the warning output is the responsibility of the right rear bumper radar sensor. System limitations/requirements:

- No under or over voltage
- Engine running
- Vehicle moving forward
- Vehicle speed above 18 mph (30 km/h)

Front camera adjustment (LDW & HBA)

Always adjust the camera aiming after removing and installing or replacing the front camera unit.
Target dimension detail and aiming procedure are provided in the service manual.

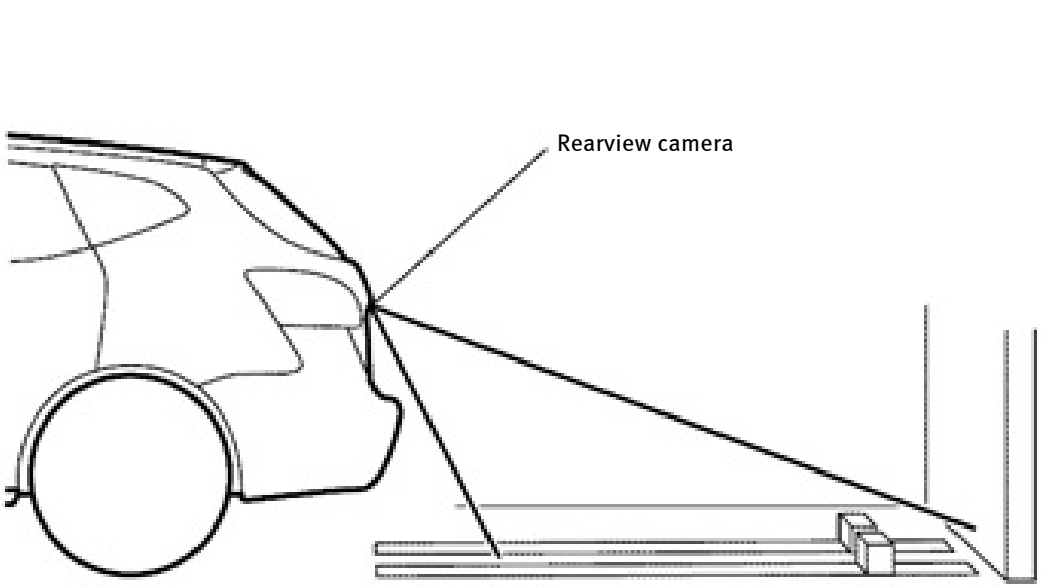


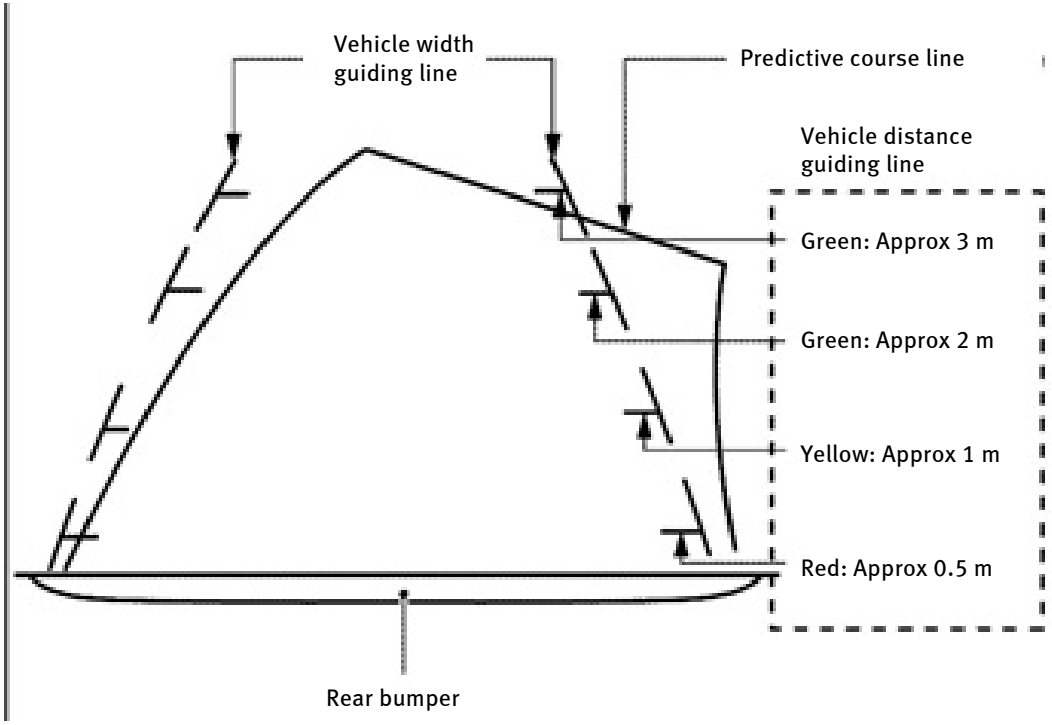
1. Board
2. String

3. Printed target
Height of target center: 50.1 in. (1275 mm)

Rearview camera

The rearview camera displays the area behind the vehicle on the AV display control unit when reverse gear is selected.
The camera system calculates guide lines based on the steering angle and other stored vehicle parameters.
The steering angle is obtained via CAN from the steering column control unit.
The predictive course lines can be turned off or on using the Infiniti controller.



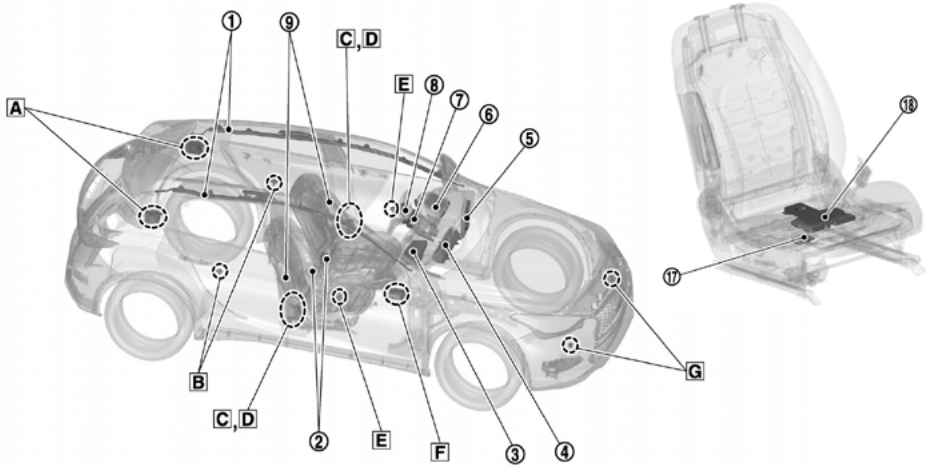


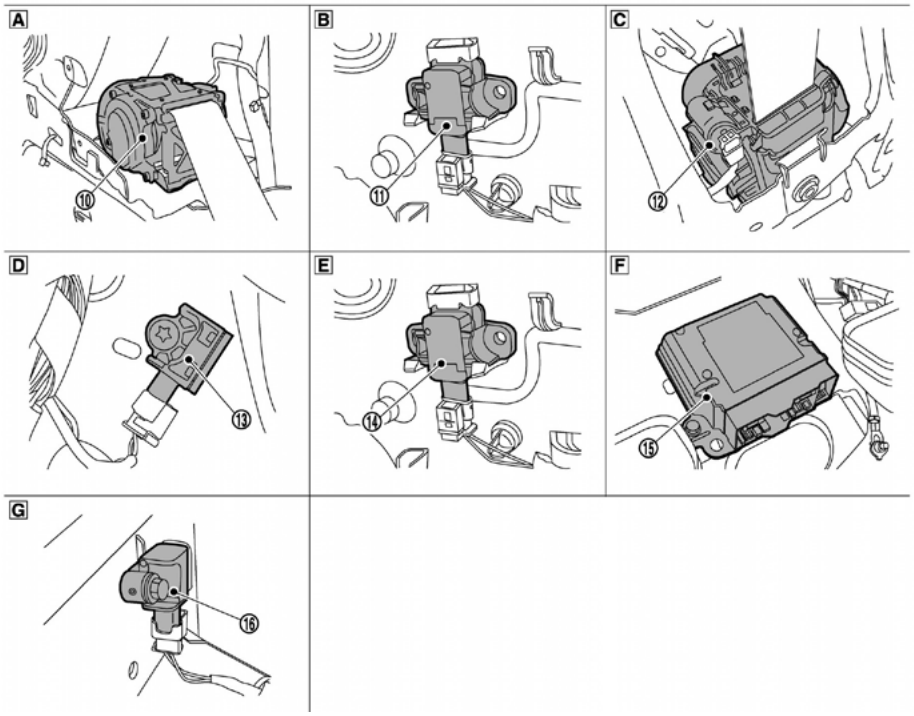
Restraints

QX30's passive safety measures relating to pyrotechnics include:

- Driver/front passenger air bag (dual stage, adaptive)
- Driver/front passenger side bags at front, with thorax/pelvis bag design
- Driver knee bag
- Passenger knee bag
- Left and right curtain bags above both seat rows (additionally used as roll over bags)
- Front seat belts with emergency tensioning retractors and belt force limitation
- Rear seat belts on outer seats with emergency tensioning retractors and belt force limitation
- ISOFIX and top tether child seat anchors on the two outer seats in the rear passenger compartment
- Automatic child seat recognition air bag OFF indicator lamp
- Front and rear seat belt status display

1. Curtain air bag module
2. Seat belt buckle
3. Passenger air bag module
4. Knee air bag module
5. BCM
6. Combination meter (air bag warning lamp)
7. Steering column control module
8. Driver air bag module
9. Side air bag module
10. Rear seat belt pretensioner
11. Rear door satellite sensor
12. Front seat belt pretensioner
13. B-pillar satellite sensor
14. Front door satellite sensor
15. Air bag diagnosis sensor unit
16. Crash zone sensor
17. Occupant classification system control unit
18. Occupant classification system sensor





Air Bag Module

The air bag module is positioned centrally in the vehicle directly under the center console. Its main responsibilities include:

- Monitoring of front, lateral, and rear crash sensors
- Monitoring of internal rollover sensors where roll over protection is required
- Monitoring of seat belt fastening
- Monitoring of passenger seat occupancy
- Receipt and transmission of CAN network safety related information
- Safety check and display of warning information
- Deployment of seat belt pretensioners
- Deployment of air bags
- Deployment of main battery pyrofuse
- Post-crash function including engine stop, fuel shut off, door unlock, and hazard warning

System flexibility can accommodate up to ten separate external crash/impact sensors allowing up to ten air bags to be controlled, all of which is configurable with CONSULT-III plus. When replacing an air bag module however, it is important to note that there are two part numbers available, depending on if roll over protection is fitted.

Air Bag Control Unit Replacement

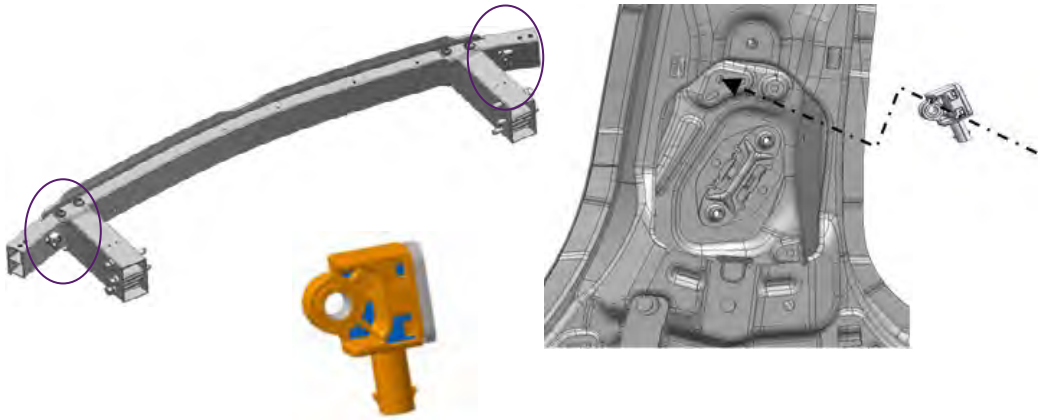
CONSULT-III plus procedures must be performed before and after replacement of an air bag control unit.

Crash/Impact Sensors

Two types of external crash/impact sensors exist, depending on position and application.

G Sensor

- Front Crash Sensor (front chassis legs)
- Side Crash Sensor (B pillars)
- Rear Crash Sensor (air bag module)

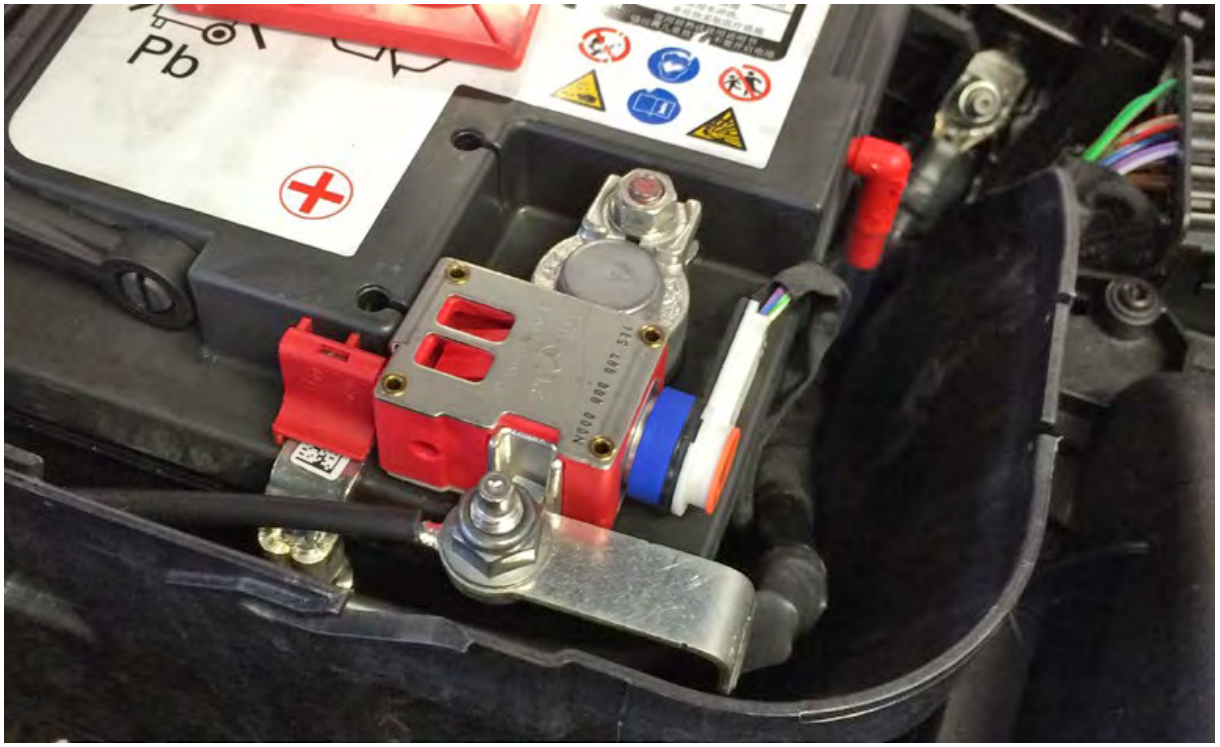


Pressure Sensor

- Side Impact (front and rear doors)

Pyrofuse

The pyrofuse is installed on the positive battery terminal. The fuse is deployed by the air bag module in the event of air bag deployment and cuts the 12V on-board electrical supply to the starter motor, and the connection to the alternator.



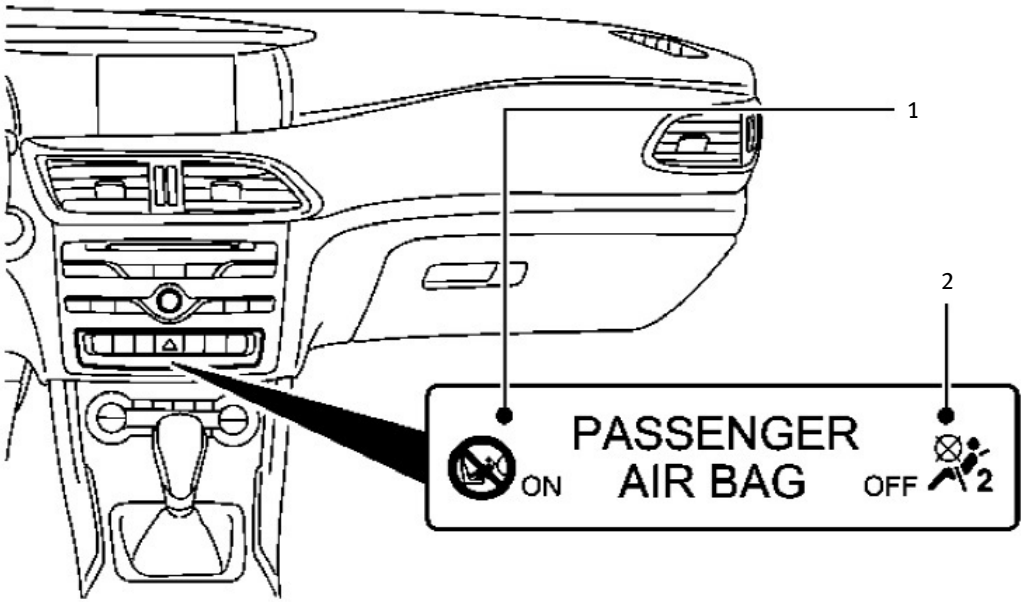
Service Point

Disconnect the battery at the negative terminal in the normal manner. The pyrofuse connector should be removed using the same procedures as other pyrotechnic devices. Refer to service manual for detail. Do not discharge storage capacitors by disconnecting the negative cable and shorting to the positive cable.

Front Passenger Seat Occupancy Detection

The air bag module uses a silicone filled weight sensing pressure mat in the passenger seat base cushion to determine the following states depending on the weight classification measured:

- Seat not occupied
- Seat occupied
- Light weight (e.g. child seat)
- Person detected



1. Passenger Air Bag Active
2. Passenger Air Bag Deactivated

The passenger air bag is automatically deactivated if the seat is not occupied or a child seat is fitted. The occupied signal is retained for a short time when pressure on the front passenger seat is relieved.

Zero Point Reset

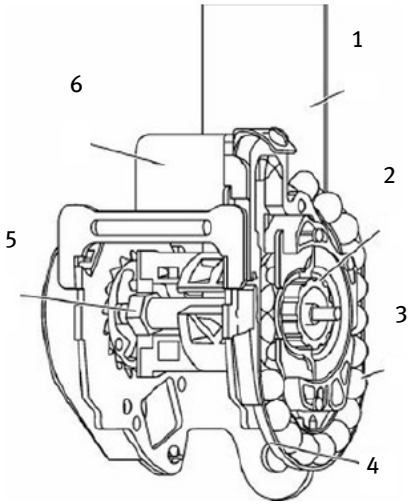
The weight sensing calibration test tool SST J-51950 (shown above) must be used in conjunction with CONSULT-III plus to calibrate the air bag module weight sensing parameters when performing any of the following:

- Seat cushion removal or replacement
- Seat cover removal or replacement
- Sensor mat removal or replacement
- Seat heater removal or replacement
- The front passenger seat is removed, or replaced

Seat belts

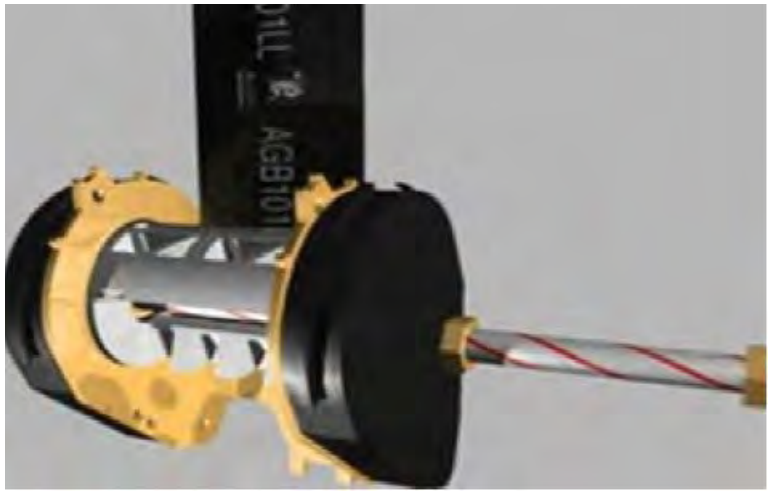
Seat belt buckle switches are provided for both front seat positions to allow front seat belt status to be displayed on the instrument panel. Pyrotechnic ball bearing type seat belt pre tensioners with torsion bar belt force load limiters are fitted to the outer front and rear seats.

Pyrotechnic pretensioner



1. Seat belt
2. Reel
3. Ball bearings
4. Track
5. Torsion bar
6. Retractor pyrotechnic

Torsion bar load limiter



Air Bags

QX30 uses a maximum of eight air bags:

- 1 x driver air bag
- 1 x passenger air bag
- 1 x driver knee bag
- 1 x passenger knee bag
- 2 x front side thorax/pelvis air bags
- 2 x curtain air bags

The driver and passenger air bags are dual stage adaptive, depending on seat position, vehicle speed, and severity of impact.

Driver Air Bag Removal

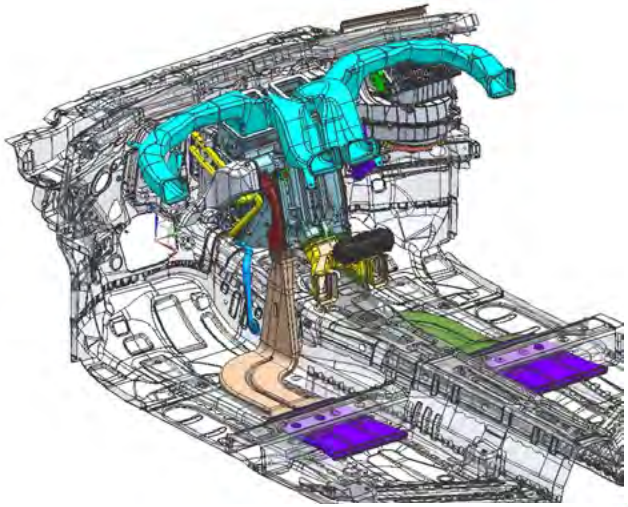
Take all normal precautions when removing the driver air bag. Two indentations on the left and right hand side of the steering wheel body mark where the fabric must be punctured to gain access to the air bag release clips. (RH shown)

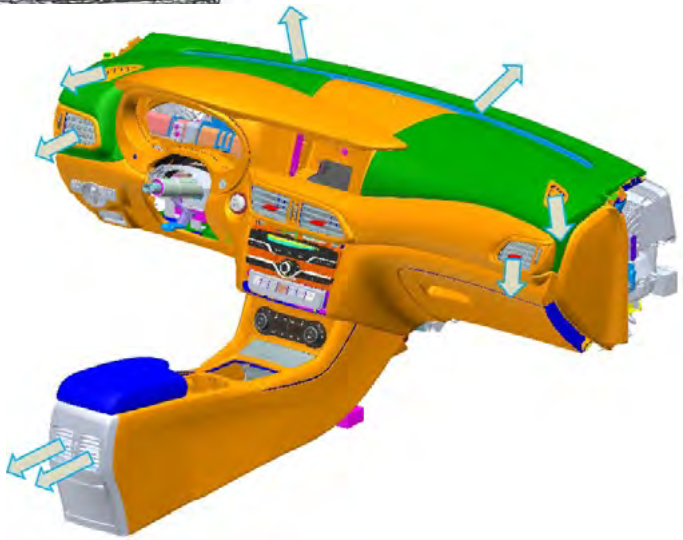
Emergency Call

The automatic emergency call function is operational when restraint systems are deplyed, or can be activated manually by means of the SOS button in the overhead control panel.

Heating, Ventilation and Air Conditioning

The QX30 heating, ventilation, and air conditioning (HVAC) system is modular in design and available as a manual or an automatic system. The air flow layout and ventilation outlets are shown below.



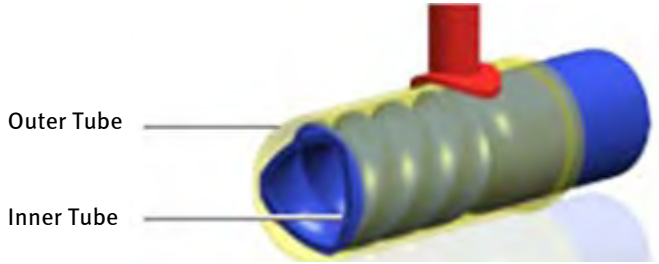


Refrigerant Circuit

The refrigerant circuit is the same regardless of system type. It is conventional in operation. Circuit main features include:

- Condenser and evaporator
- Variable swash plate compressor with magnetic clutch
- High and low pressure circuit service/test points
- Thermal expansion valve
- PAG oil type specific to refrigerant used

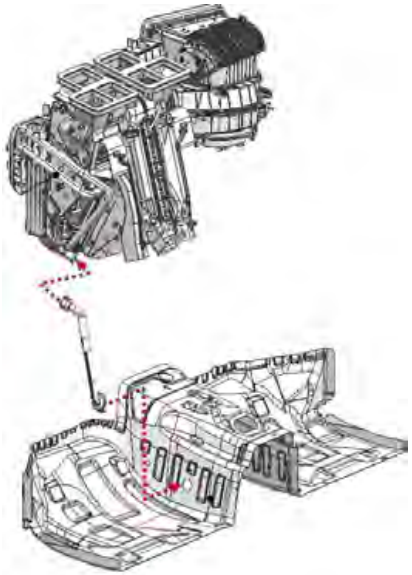
As with Q50, a double pipe heat exchanger consisting of a coaxial tube (tube within a tube) allows the refrigerant feed and return to flow close to each other. This provides additional refrigerant cooling, thus reducing the operating energy input of the refrigerant compressor (increased system efficiency).



HVAC Unit

A drain hose is attached to direct condensed moisture from the evaporator to the underside of the vehicle. Technicians must ensure this is attached correctly to prevent water ingress into the passenger compartment.

Air is drawn in via a fresh air/recirculation door and a single pipe blower. The blower motor is mounted separately from the housing by special rubber elements to minimize vibrations and reduce noise. The blower speed can be continuously varied with an energy-efficient, pulsed regulator. The in-cabin micro filter is accessed on the glove box side of the center stack.



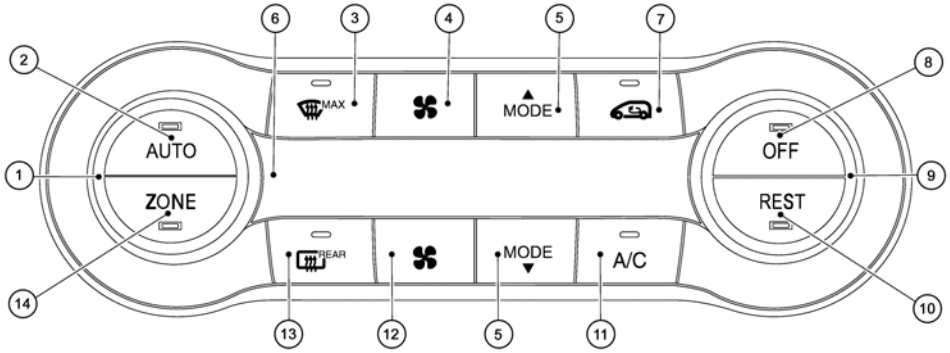
In-cabin Micro Filter

Control Panel

While the InTouch center screen displays climate information, control is only performed via the control panel.

Automatic Climate Control Features

- Selectable dual zone air conditioning with on/off button
- Automatic temperature and fan speed adjustment with manual override
- Automatic air distribution with manual override via four stepper motors
- Additional rear center vent
- Digital adjustment via buttons/selector wheels
- Display of left/right specified temperature via central panel
- Front and rear windshield defoggers
- Automatic air recirculation
- In-cabin micro filter with activated charcoal
- Coolant circulation pump used to support coolant flow at low engine RPM or when the residual heat function is being used
- Additional control sensors:
  - Evaporator Temperature Sensor
  - Refrigerant Pressure Sensor
  - Internal Temperature Sensor
  - Air Quality Sensor
  - Solar Sensor



1. LH Zone Temperature
2. Auto Mode ON/OFF
3. Windshield Defogger
4. Manual Airflow Increase
5. Manual Air Distribution
6. Central display panel
7. Air Recirculation ON/AUTO Switch (LED off when in auto mode)
8. HVAC System ON/OFF Switch
9. RH Zone Temperature
10. MAX Cooling Switch
11. Air Conditioning ON/OFF Switch
12. Manual Airflow Decrease
13. Rear Window Defogger
14. Single/Dual Zone Switch

Air Conditioning Filter

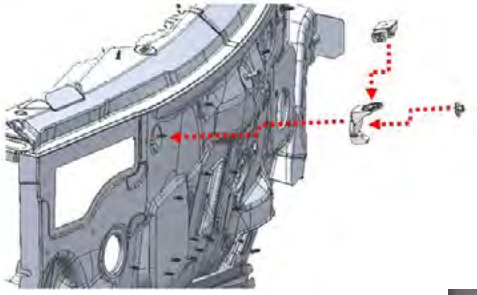
Removal of the glove box is not necessary. To replace the filter, simply remove the right lower kick panel and carefully fold back the passenger side carpet to reveal the interior relay/fuse box, auxiliary stop/start battery, and filter location. Two quick-release clips secure the filter cover. Remove and replace as shown.

Air Quality Sensor

This sensor provides information in support of the automatic recirculation function. It is sensitive to the following:

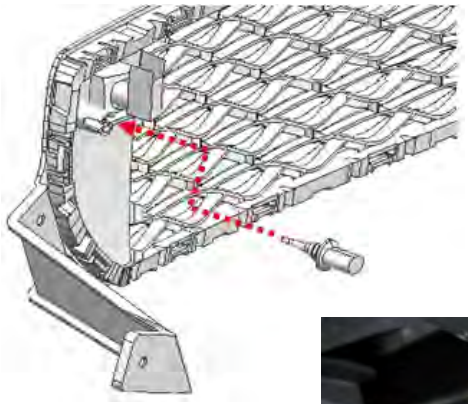
- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_x)
- Outside dew point temperature
- Relative humidity
- Ambient temperature

It is located adjacent to the interior ventilation air inlet, to the side of the plenum chamber.



Outside Air Temperature

Used to refine the climate control of the passenger compartment, it is fitted to the left side of the front bumper lower grill.



Interior Temperature Sensor

Fitted in the instrument panel, it is used for feedback to help maintain a consistent interior cabin temperature.

Sunload Sensor

The sensor is located in the center of the dash closest to the base of the windshield. It is used to trim the cabin temperature dependent on the vehicle's position in relation to the intensity and position of the sun.

Eco Stop/Start Function

Initially, the system prevents the engine from being stopped until the preselected interior temperature is reached. Once achieved however, if the interior temperature increases above the preselected value during subsequent stops, the air conditioning does not request a forced engine start in order to save energy, and the refrigerant compressor is not activated unless there is a risk of the windows fogging up. As a consequence, this can result in a reduced cooling output while the engine is stopped if the outside temperature is high. If this is not desired, the ECO stop/start function can be deactivated by pressing the ECO OFF button.

Auto Air Recirculation Mode

To prevent the windows from fogging up, the system automatically switches back to external ventilation in the following cases:

- After 5 minutes when the refrigerant compressor is shut off
- After 5 minutes if the outside temperatures is below approx. 44°F (7 °C)
- After 30 minutes if the outside temperatures is above approx. 44°F (7 °C)

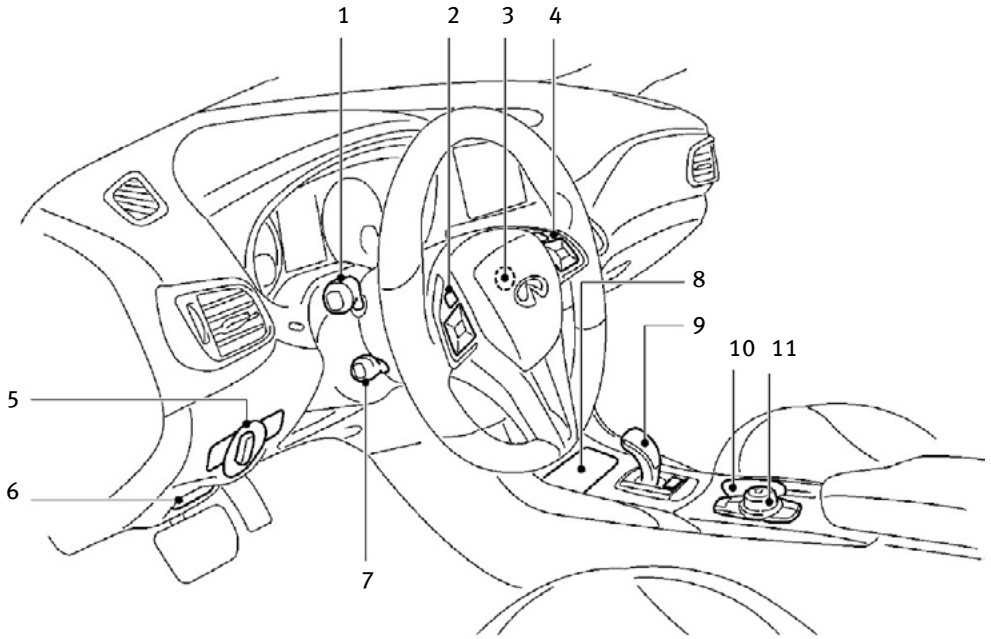
Diagnosis

When performing diagnostics or talking to the customer, the following operational points are worth noting:

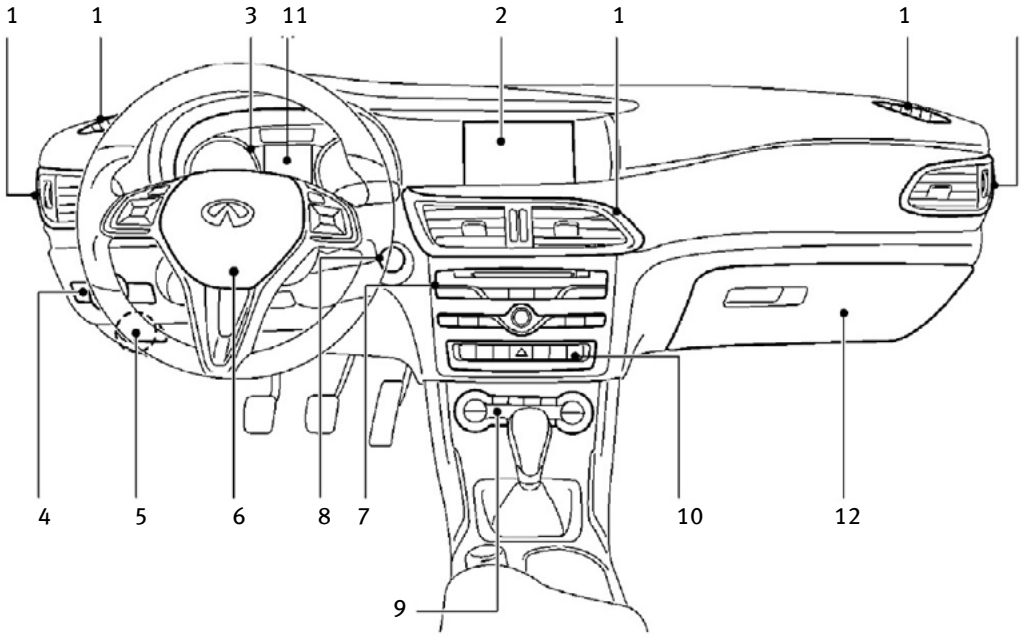
- When switching the air conditioning OFF, there may be a delay before the magnetic clutch disengages.
- Changes in diffuser outlet noise may be experienced periodically when in automatic recirculation mode.
- When making manual mode changes with the IGN ON/ENG OFF, there may be a delay before the changes take place when the engine has started.

Driver Controls

The accompanying diagrams show the layout of the instrument panel and main driver controls. This section takes a look at the functionality and service aspects of the steering wheel combination switch, central switch panel, and the rotary lighting switch.



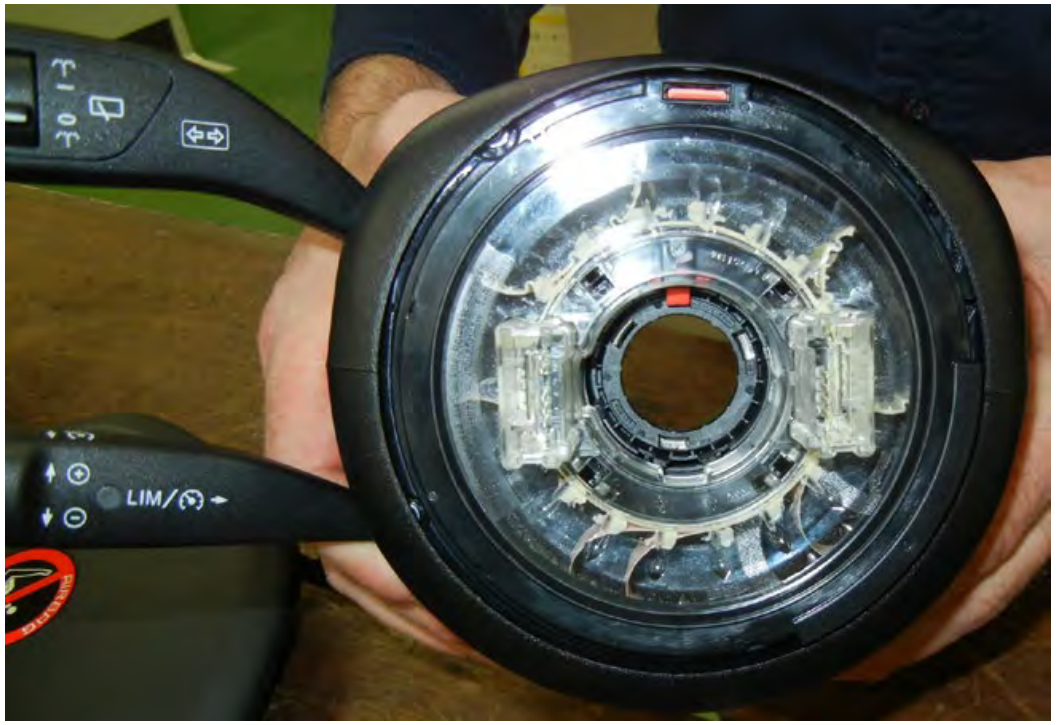
1. Turn Signal, Wiper, Washer, and High Beam Stalk
2. Steering Wheel Controls LH
3. Ignition Switch (dash mounted behind steering wheel)
4. Steering Wheel Controls RH
5. Rotary Lighting Switch and Fog Lamp Switch
6. Electric Parking Brake
7. Intelligent Cruise Control/ASCD Stalk
8. USB Connection Ports
9. Transmission Shift Lever
10. Double Front Cup Holders
11. Infiniti Controller



1. Vents
2. Center Display
3. Meters and Gauges
4. Rotary Light Switch
5. Electric Parking Brake
6. Steering Wheel
7. Audio System
8. Ignition Switch
9. Heating and Air Conditioning
10. Central Switch Panel
11. Vehicle Information Display
12. Glove Box

Steering Wheel Combination Switch

The switch internal functionality is similar to that of other Infiniti models, however on QX30 it has a built-in steering wheel angle sensor. If the combination switch is removed or replaced, relearning of the steering wheel center position is done automatically without CONSULT intervention. Externally, differences are limited to the positioning and operation of its control stalks.



Central Switch Panel

Four variations of the central switch panel exist:

1. With hazard switch, ECO start/stop switch, passenger air bag On/Off LED, and anti-theft-protection indicator LED
2. As above (1) with seat heaters
3. As above (1) with parking assist cancel switch
4. As above (1) with parking assist cancel switch and seat heaters

Rotary Lighting Switch

The lighting switch has the following functionality:

- Parking lights
- Side marker lights
- Auto lights (OFF position when the ignition is off)
- Headlights
- Front fog lamp switch
- Manual headlamp leveller (halogen headlamps)

Four versions are available depending on vehicle specification:

- Manual headlight leveller
- Manual headlight leveller with front fog lamp switch
- Automatic (LED) headlight leveller
- Automatic (LED) headlight leveller with front fog lamp switch

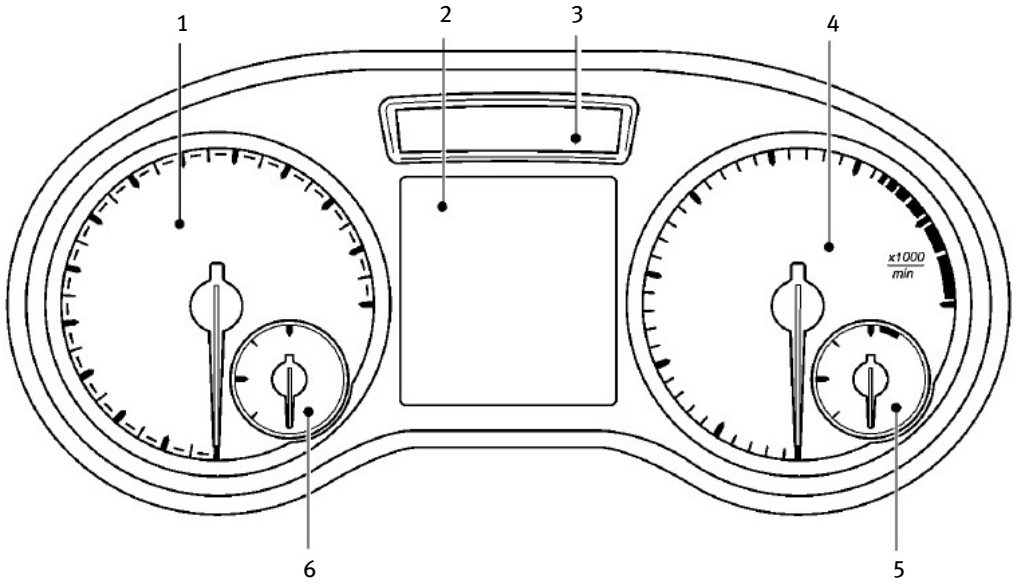
NOTE: leaving in Park position for a very extended period may cause battery to discharge.

Instrument Panel

Combination meter versions exist depending on vehicle specification and trim level, as follows.

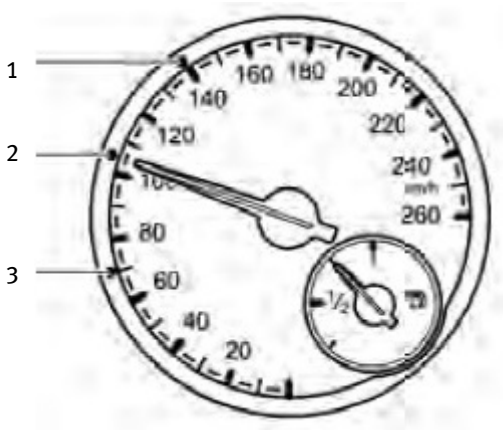
	NAM
Black and white	X
Color without ICC	X
Color with ICC	X

General Layout



1. Speedometer
2. Vehicle Information Display
3. Upper Information Display
4. Tachometer
5. Engine Coolant Temperature Gauge
6. Fuel Gauge

Speedometer



On vehicles with intelligent cruise control (ICC), the outer ring (2) of the speedometer (1) is divided into LED segments (3) that light up to indicate the available speed range when cruise control is activated.

A combination meter can be swapped between vehicles repeatedly while the total recorded distance is under 620 miles (1000 kms). After this distance has been achieved, the combination meter is locked to the vehicle.

The combination meter does not have immobilizer responsibilities.

Warning and Information Symbols

Some symbols are also displayed in the vehicle information display.

Anti-lock Braking System (ABS) Warning Light

Brake Warning Light (Red)


Low Tire Pressure Warning Light


Malfunction Indicator Light (Yellow)


Distance Warning Light

Parking Brake Warning Light (Red)

Parking Brake Warning Light (Yellow)


Coolant Warning Light


Seat Belt (Driver and Front Passenger) Warning light


Supplemental Restraint System (SRS) Air Bag Warning Light


Low Fuel Warning Light


Turn Signal/Hazard Indicator Lights


Low Beam Indicator Light

Vehicle Dynamic Control (VDC) OFF Indicator Light


Front Fog Light Indicator Light


High Beam Assist Indicator Light

Service Point

A new meter requires configuration to the vehicle to account for fuel tank types (FWD/AWD) for example. This is achieved via the read/write process using the CONSULT-III plus Work Support function.


High Beam Indicator Light

Side Light Indicator Light

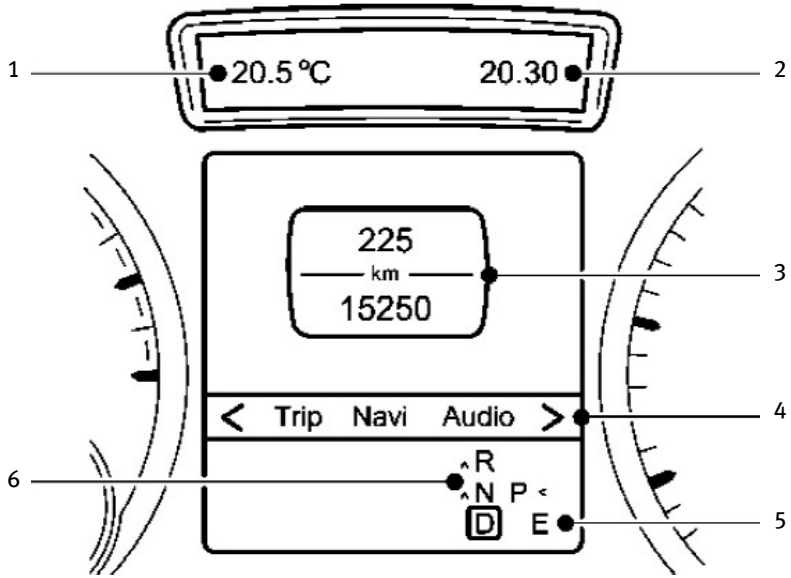

Vehicle Dynamic Control (VDC) Warning Light

Front Passenger Air Bag Status Light**

*: if equipped
**: located above heater and air conditioner controls

Vehicle Information Display

The instruments panel central display is used to convey driving information and vehicle set up parameters.



① Permanent Display: depending on vehicle specification: outside temperature or speed

② Time

③ Text Field

④ Menu Bar

⑤ Drive Program

⑥ Shift Lever Position

Text Field ③ shows the selected menu or sub-menu as well as display messages.

Depending on the vehicle equipment levels, the driver can scroll between the following vehicle information display sub menus by repeatedly pressing the left or right steering wheel buttons:

- Trip
- Navigation
- Audio
- Assist
- Service
- Settings

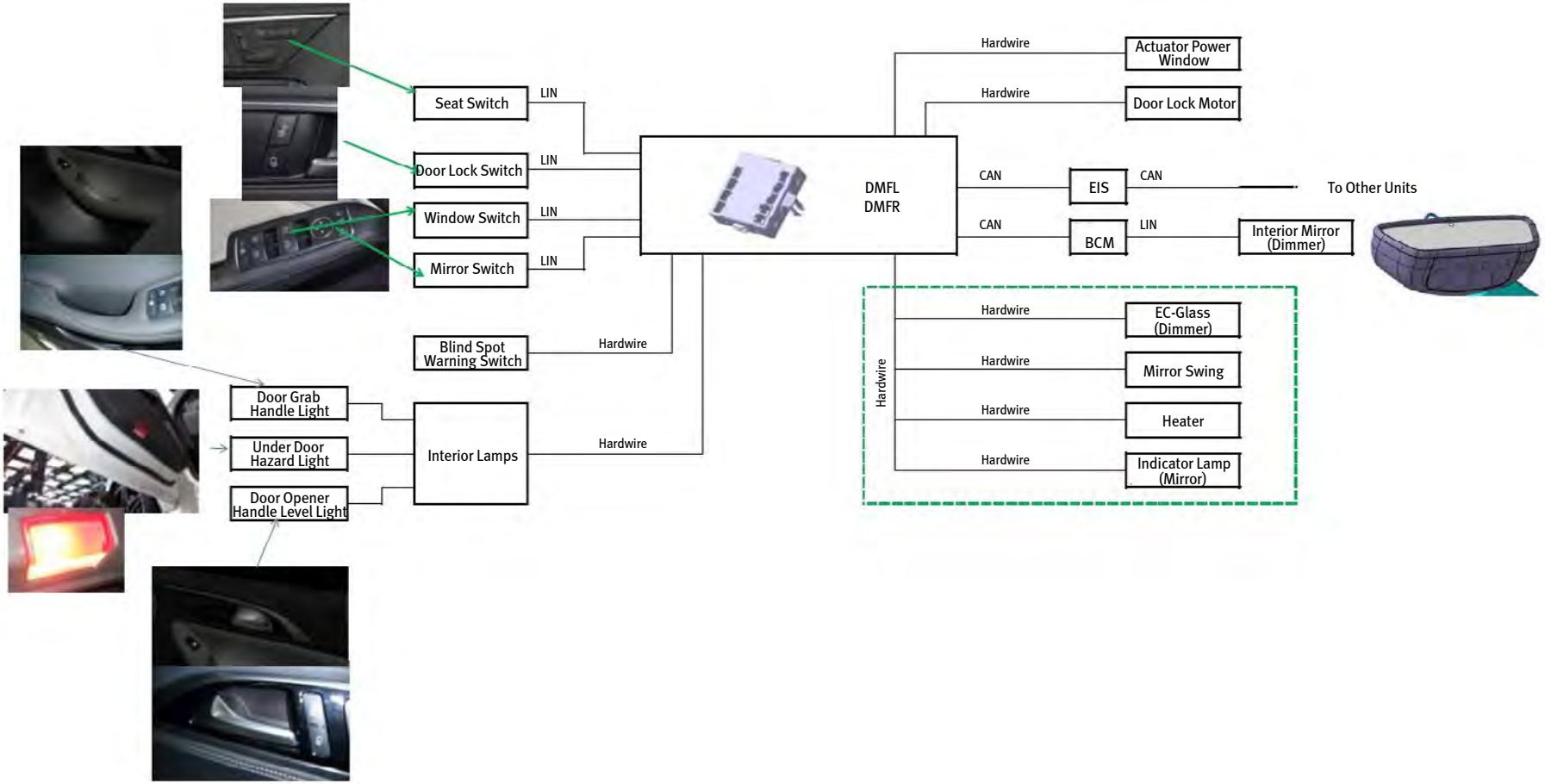
Pressing the OK button selects a sub menu, while pressing the up or down steering wheel buttons scrolls between the options within a sub menu. The owner's manual provides more information regarding the vehicle configurable parameters within the vehicle information display menu options.

Door Control

The driver door electrical architecture regarding the operation of electric windows, mirrors, door lock control, and lighting is shown below and consists of:

- LIN inputs to the driver's door module
- Hardwire outputs from the driver's door module
- CAN exchange of information with other vehicle control modules via either EIS or BCM modules.

The front passenger door electrical architecture is similarly laid out.



Door Modules

Both front doors are equipped with a door module. Each is accessed by removing the relevant door finisher. They are marked VL and VR to designate the appropriate side. Both modules are available as:

- With super lock and blind spot warning
- Without super lock and blind spot warning

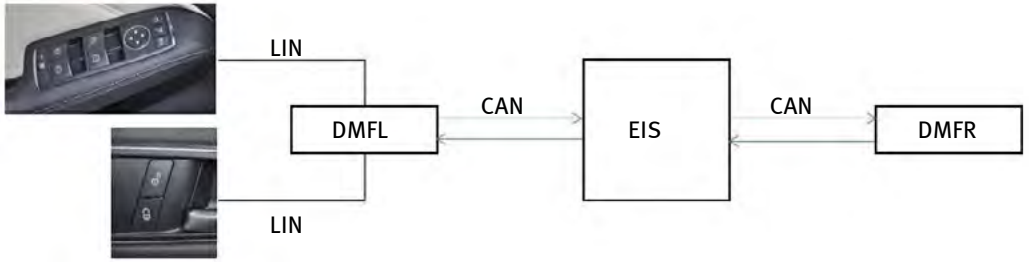
Door Module Front Left (DMFL)

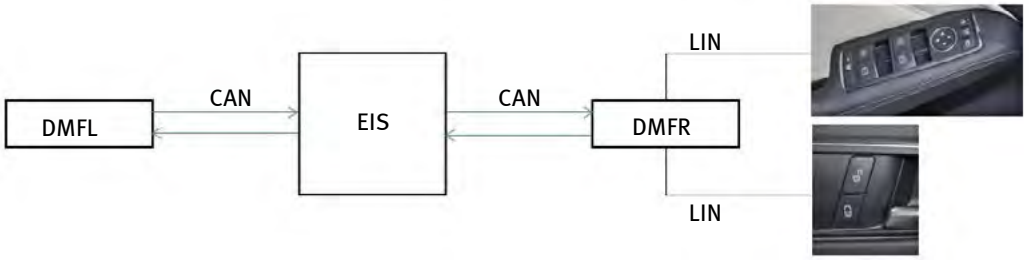
Door Module Front Right (DMFR)

Regardless of type, all door modules are software compatible with the following vehicle features:

- 7DCT
- Auto dimming
- Electric folding mirrors
- Seat memory
- Ambient lighting

Communication architecture between the two front door modules is shown below.





Door Switches

The front door switch operation is managed by the front door modules. Rear door switches are hard wired directly to the body control module (BCM).
All electric window switches are all double detent to allow both specific positioning and one touch operation. Anti-pinch function is present on all electric windows.

Driver Door Switch Panel

To types of driver door switch panel exist depending on vehicle specification:

- Power window switch block with child lock and mirror adjustment switch.
- Power window switch block with child lock, mirror adjustment switch, and mirror folding function.

Electric Window Switches

- Power window switch in front passenger and rear doors.

Central Locking Switch

The switch is fitted to the driver door panel and additionally on the passenger side door panel.
Pressing and holding the lock or unlock button until a bleep is heard switches the vehicle's automatic locking feature ON or OFF without the use of the vehicle information display menu.

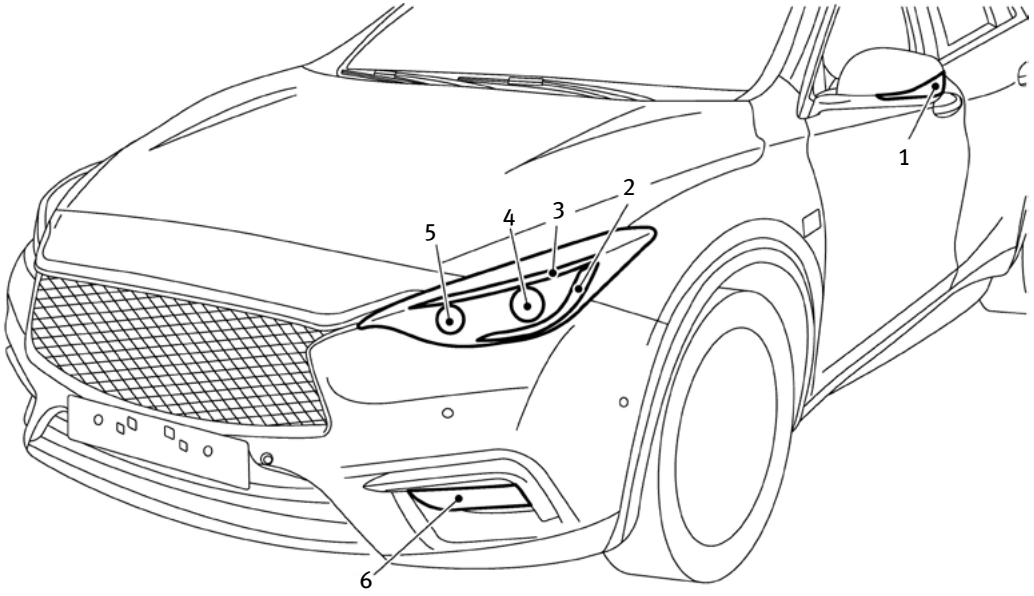
Lighting

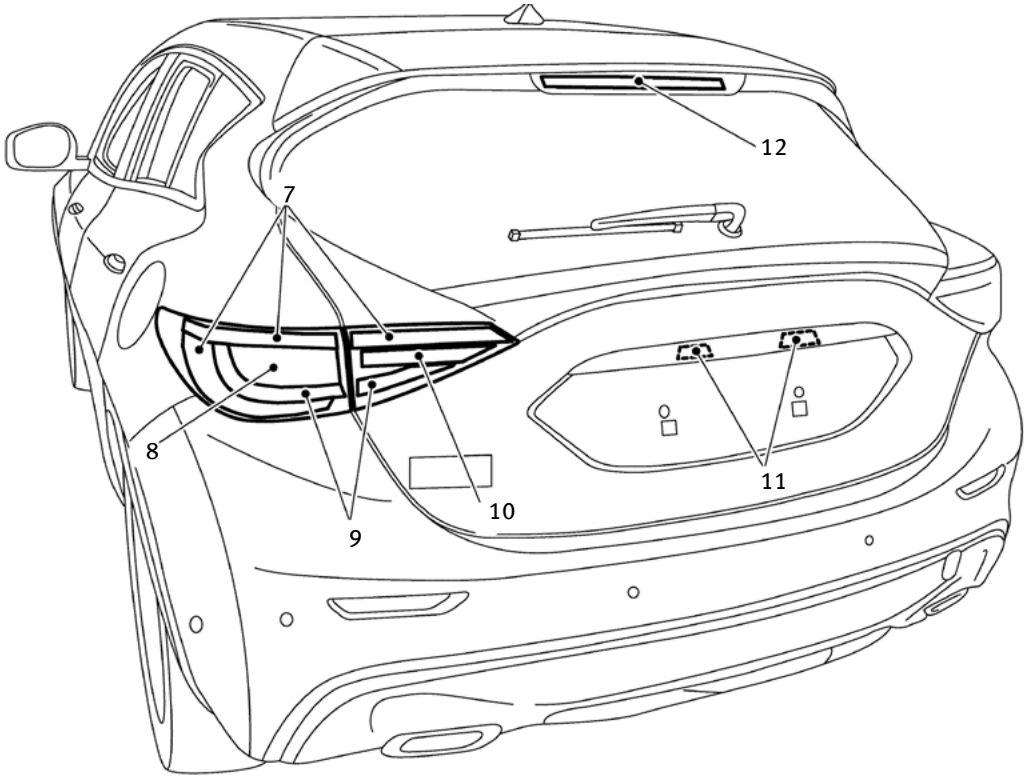
Two external lighting systems are available.

- Halogen Headlamps
- LED Headlamps

Halogen Headlamp System

The 60/55 W (H9) halogen front lighting system has manual adjustment. The front turn signal lamps utilize conventional PWY24W bulbs. All other external lighting is LED.



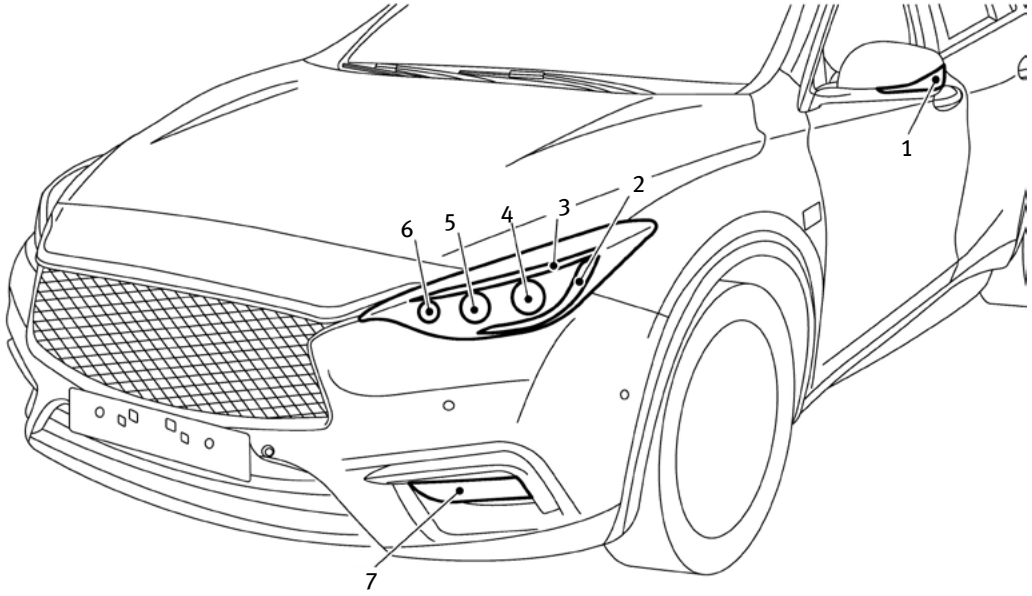


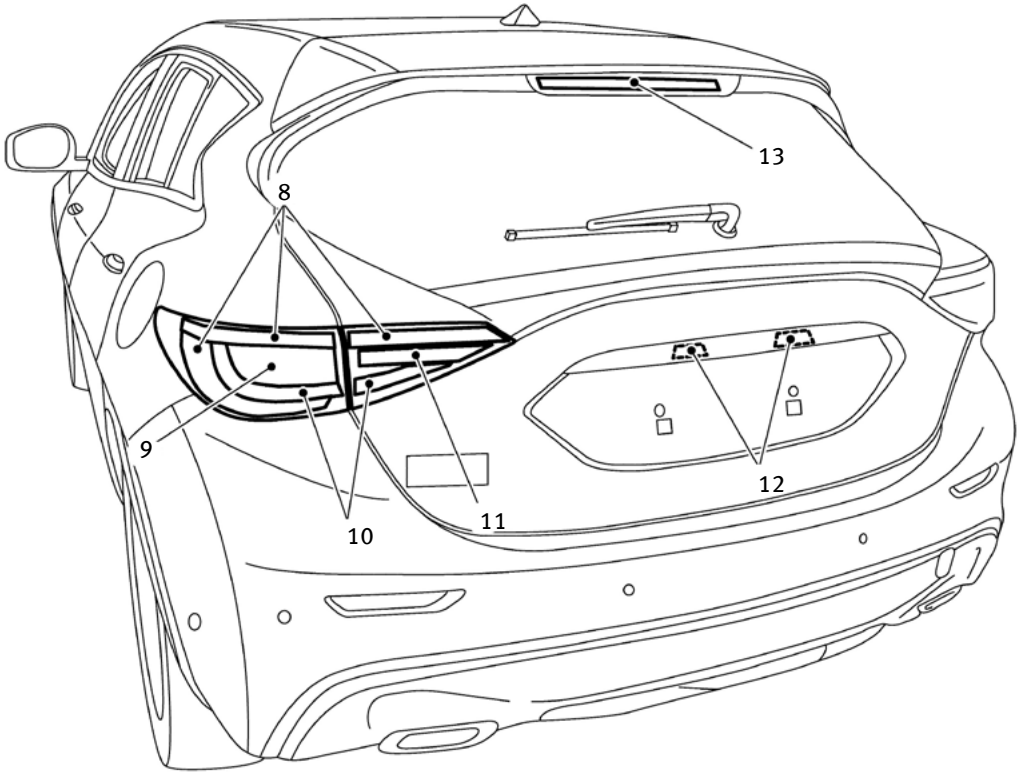
1. Side Turn Signal Lamp
2. Parking Lamp/Daytime Running Light/Position Lamp
3. Parking Lamp/Daytime Running Light/Position Lamp
4. Headlamp (Hi/Lo)
5. Front Turn Signal Lamp
6. Front Fog Lamp
7. Tail Lamp
8. Stop Lamp
9. Rear Turn Signal Lamp
10. Back-up Lamp
11. License Plate Lamp
12. High-mounted Stop Lamp

LED Headlamp System

The LED front combination lamps have automatic adjustment. With this system, all lamps are LED. System additions include:

- Active Front Lighting System (AFS)
- High Beam Assist (HBA)

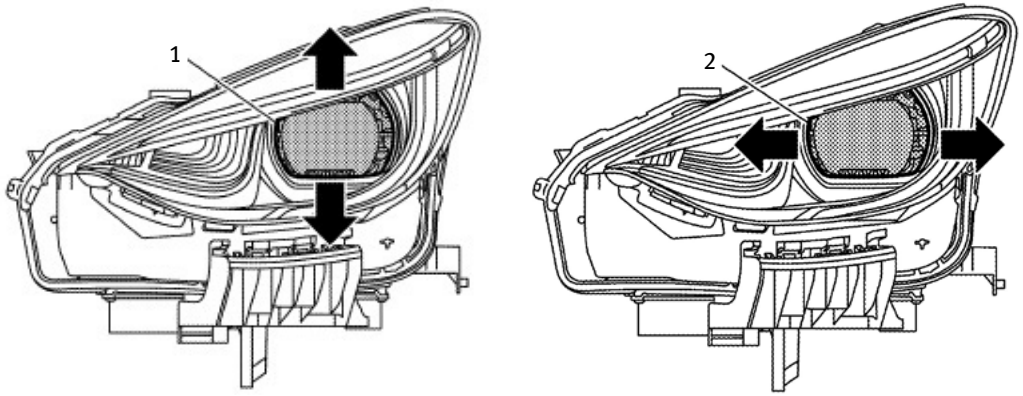




1. Side Turn Signal Lamp
2. Parking Lamp/Daytime Running Light/Position Lamp
3. Parking Lamp/Daytime Running Light/Position Lamp
4. Headlamp (Hi/Lo)
5. Headlamp (Hi)
6. Cornering Lamp
7. Front Fog Lamp
8. Tail Lamp
9. Stop Lamp
10. Rear Turn Signal Lamp
11. Back-up Lamp/Rear Fog Lamp (Driver Side Only)
12. License Plate Lamp
13. High-mounted Stop Lamp

Headlamp Control unit

Each headlamp unit is equipped with a headlamp control unit, regardless of external lighting system.
Each control unit is responsible for headlamp voltage protection, headlamp aiming (1), and swivel (2), depending on application.
When replacing a headlamp control unit, you must perform various Work Support procedures using CONSULT-III plus, depending on the application.

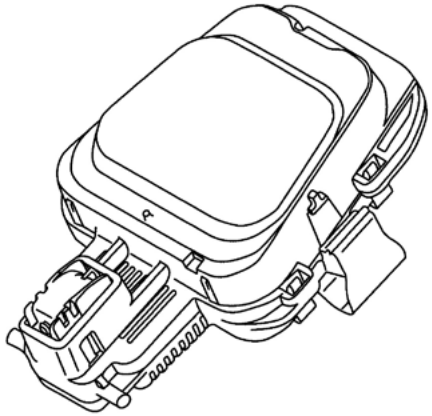


LED Headlamp Control Module

When equipped with LED lighting, an extra LED control unit is fitted to the headlamp unit to control the LED high and low beam.
Additional Work Support functions are required using CONSULT-III plus when replacing an LED control unit.

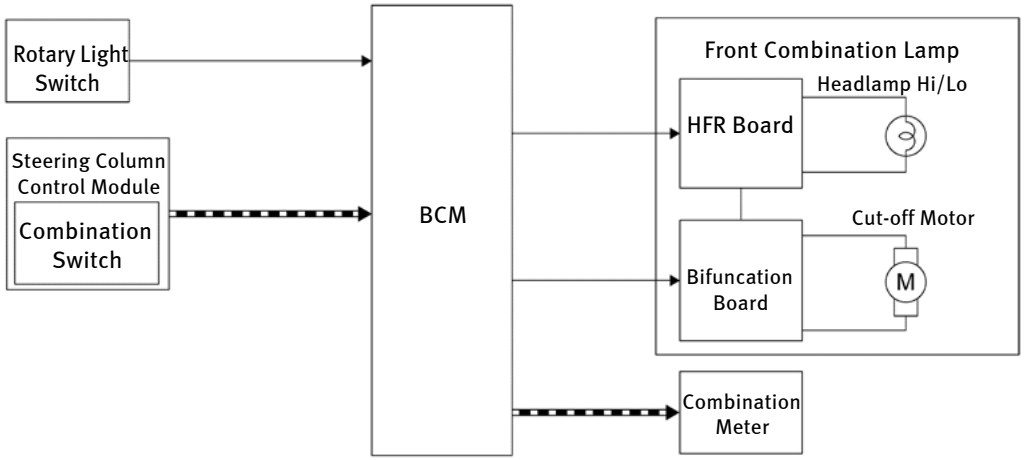
Auto Lights

The auto light system is managed by the BCM and can have the auto wipers linked to its function.
The function automatically turns ON/OFF the exterior lamps (headlamp Lo/Hi, front fog lamp, position lamp, license plate lamp, and tail lamp) depending on the outside brightness.

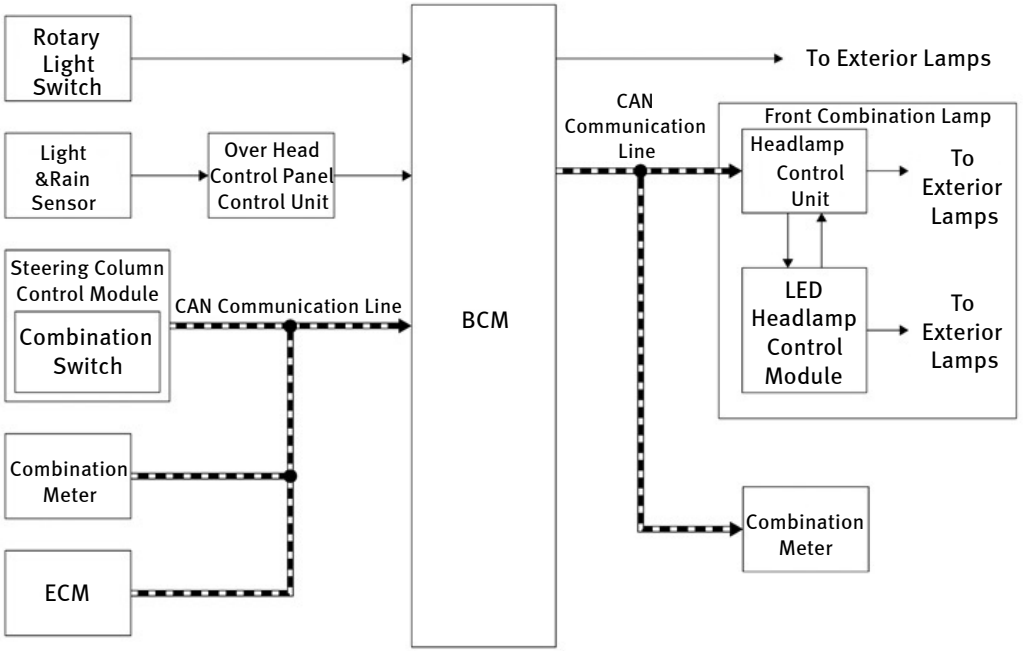


Lighting Circuits

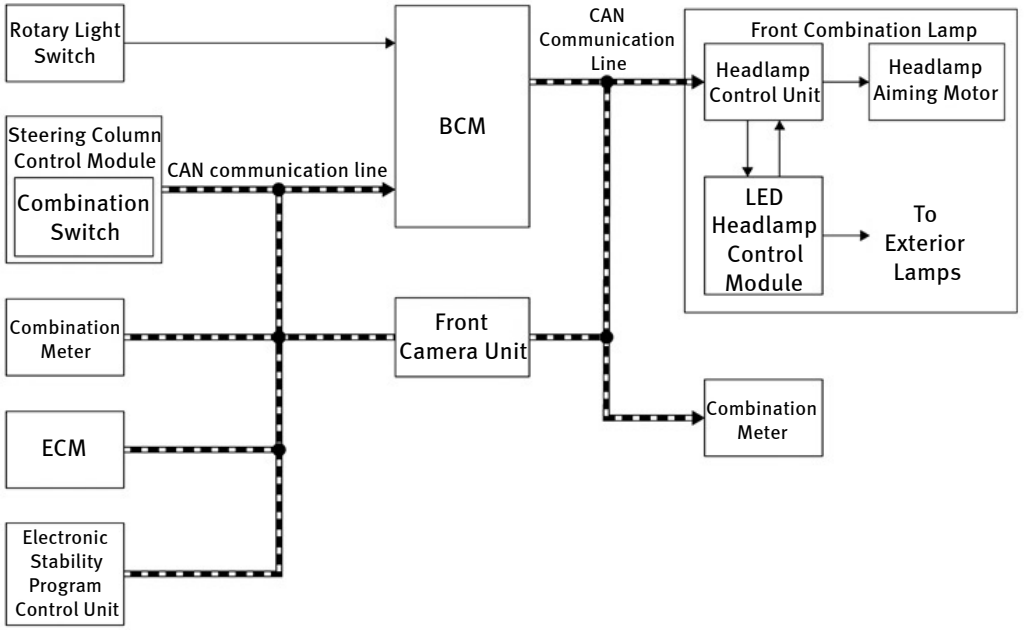
The basic halogen lighting circuit is shown below. Lighting request information is processed by the BCM and communicated to each front combination lamp unit. The combination meter displays the appropriate lighting selected.



For comparison, the LED lighting circuit also utilizes hard wire and CAN communication, however additional LIN communication is used internally between each combination lamp control unit.



This final lighting circuit diagram is associated with the active front lighting system (AFS) and high beam assist (HBA) system.
These systems are only available if the vehicle is equipped with LED front headlamp system.



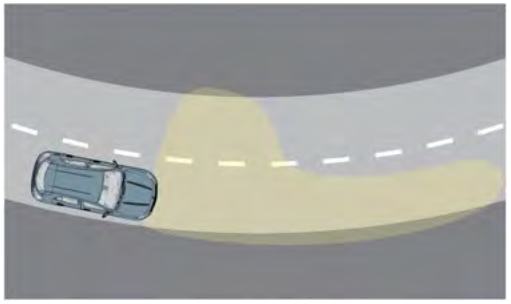
Active Adaptive Front Lighting System

Active adaptive front lighting system (AFS) is controlled by each headlamp control unit and comprises the following features:

- Active Curve Control – each headlamp swivels according to steering wheel input and road speed.
- Cornering Lamp Control – additional area illuminated when cornering (requires indicator operation).
- Headlamp Automatic Aiming Control – automatic headlamp beam height adjustment.

All of the above features require the following conditions to be met:

- Engine running
- Headlamp low beam selected
- Vehicle being driven

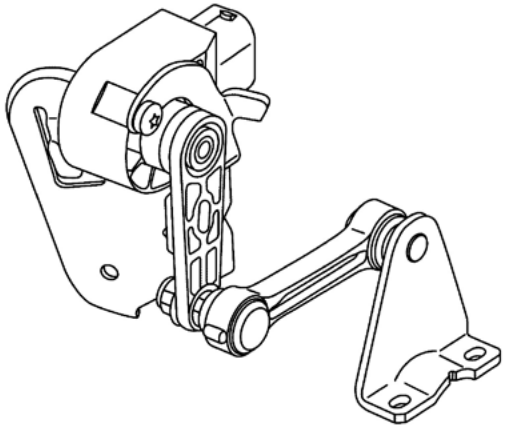


Active Curve Control

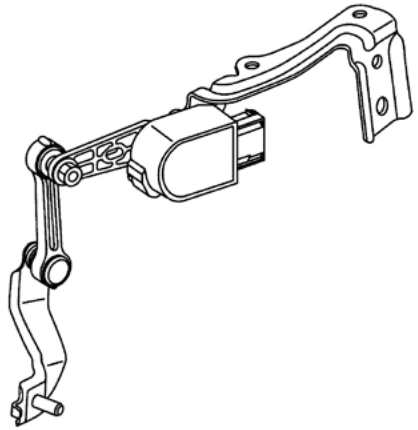
Cornering Lamp Control

Headlamp Automatic Aiming Control

Headlamp automatic leveling is required when equipped with LED headlamps.
Suspension height sensors are fitted to right hand side suspension components, front and rear.
Information from these sensors is sent to the LH headlamp control unit for headlamp aiming purposes.
Sensor initialization is required in Work Support using CONSULT III plus when replacing a front combination lamp or when reinstalling/replacing a height sensor.



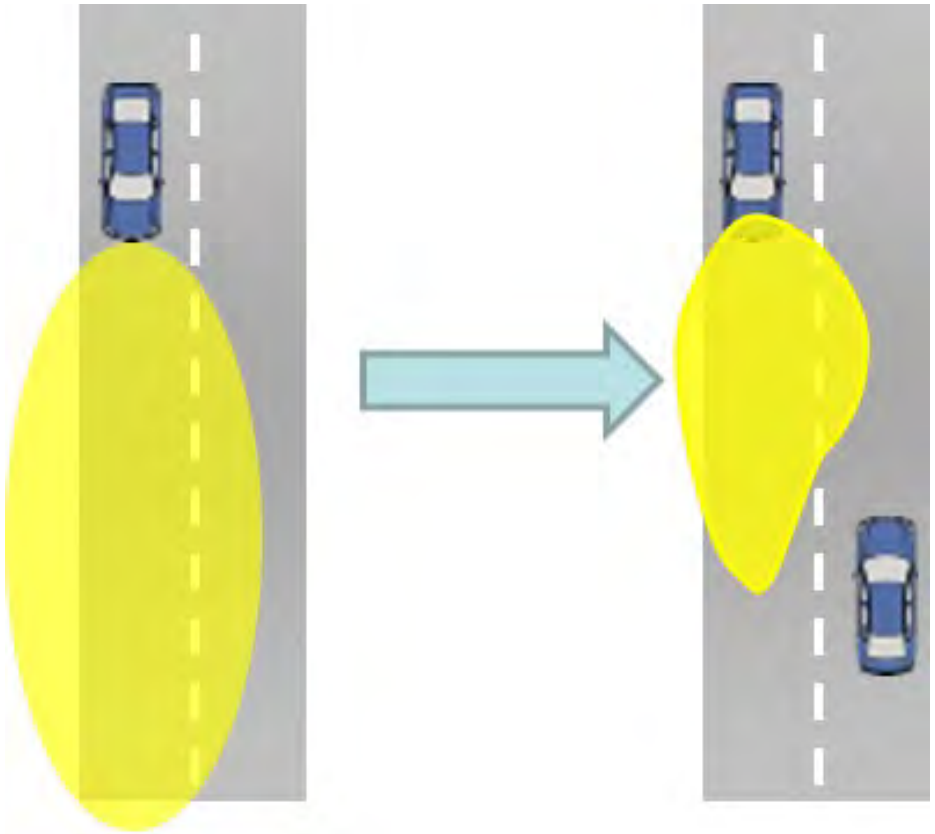
Front



Rear

High Beam Assist System

When the driver sets the lighting switch to high beam position, the high beam assist (HBA) system automatically switches the headlamp to the low beam when a vehicle ahead or an oncoming vehicle appears.
The high beam assist system is controlled by a combination of the BCM and front camera unit.



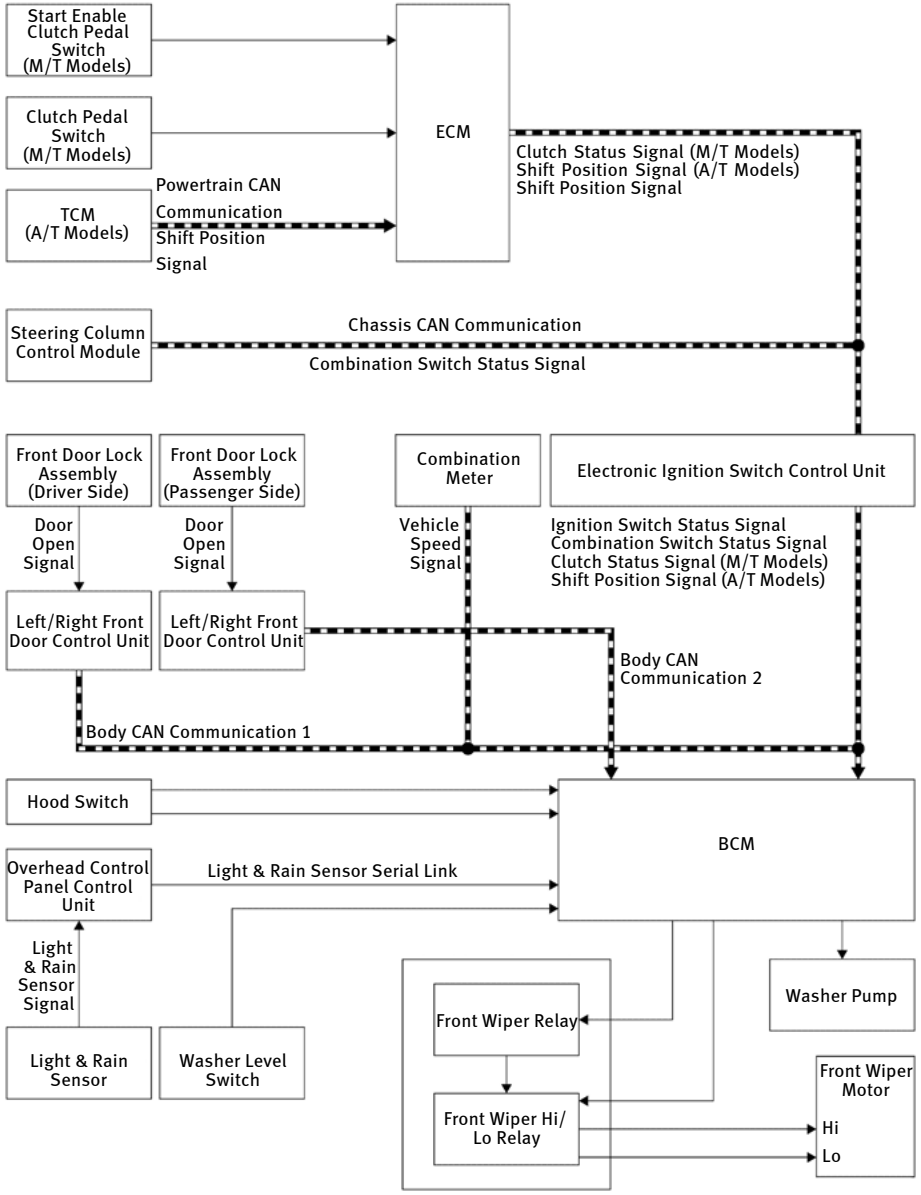
Bulb Replacement

Front lighting service access points are built into the front wheel inner wheel arch liners.

Wipers

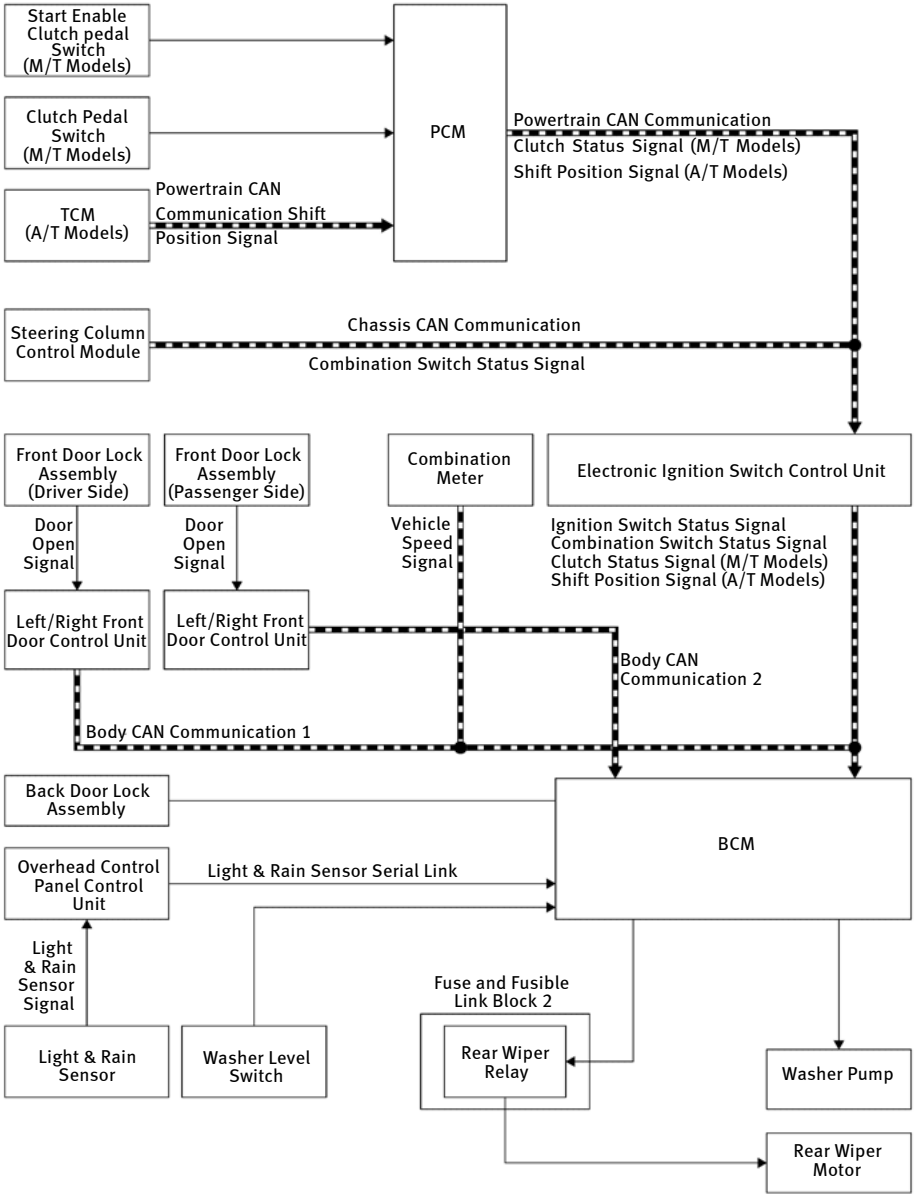
Front Wipers

The steering column control module detects the combination switch position and transmits the front wiper request signal to the BCM via CAN communication. The BCM controls both the front wiper relay and front wiper Hi/Lo relay. When in the auto wipe position, the infrared rain sensor detection information is forwarded to the BCM via a serial link.
A hood open signal prevents wiper operation up to a road speed of approx. 4 mph (6 km/h) to eliminate damage.



Rear Wiper

The steering column control module detects the combination switch position and transmits the rear wiper request signal to the BCM via CAN communication. The BCM controls the rear wiper relay and washer pump. Rear wiper operation is linked to reverse gear selection, depending on a number of operation conditions being met.



Spray Nozzle Hose Heater

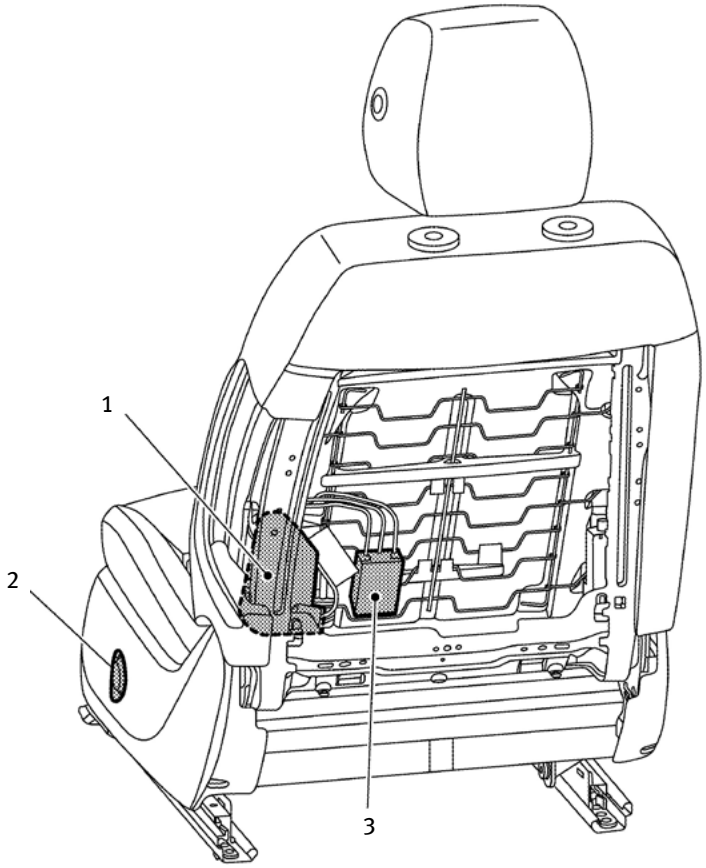
If the outside temperature is 41°F (5°C) or less, the spray nozzle hose heater prevents the washer fluid in the spray nozzles and the spray nozzle hose from freezing.

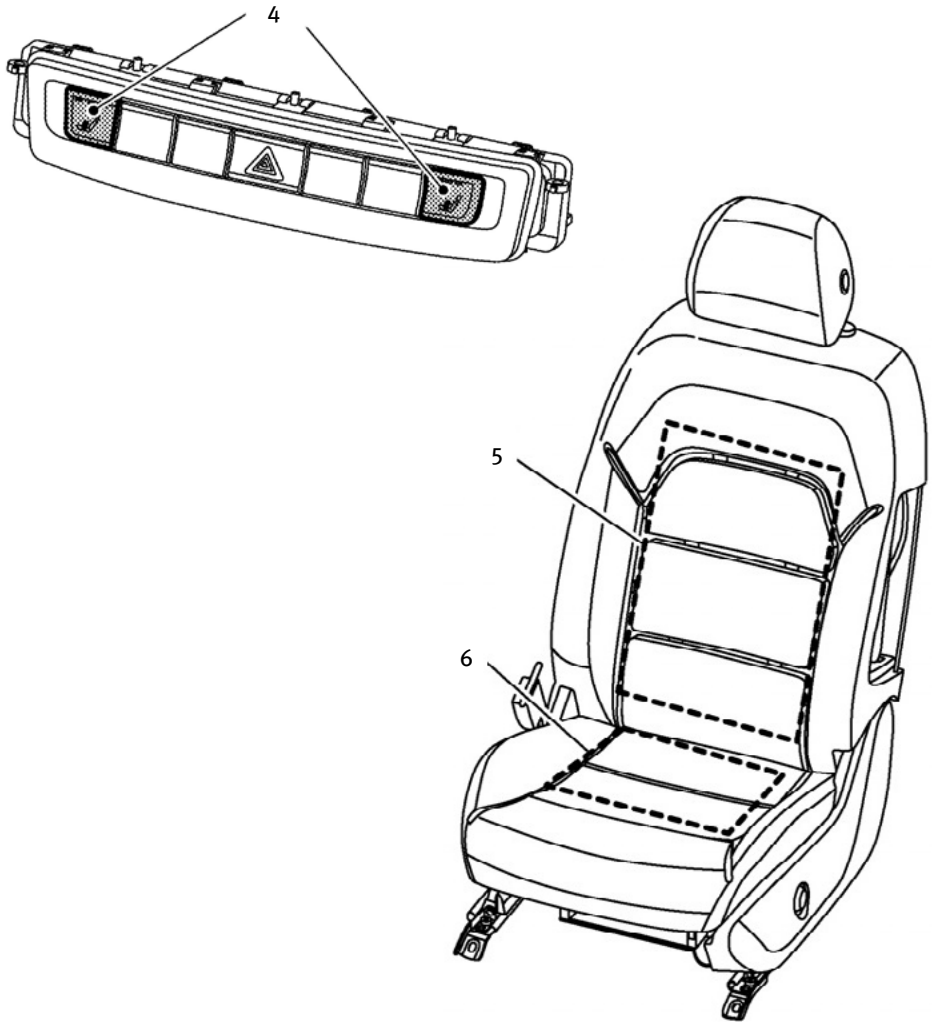
Wiper Blade Replacement

The wiper blade assembly can only be replaced as a complete assembly.

Seats

Standard and Sport seat options are available. Both can be equipped with either manual operation or ten point power seat adjustment. Seat heaters and four-way electrical lumbar support adjustment are standard.



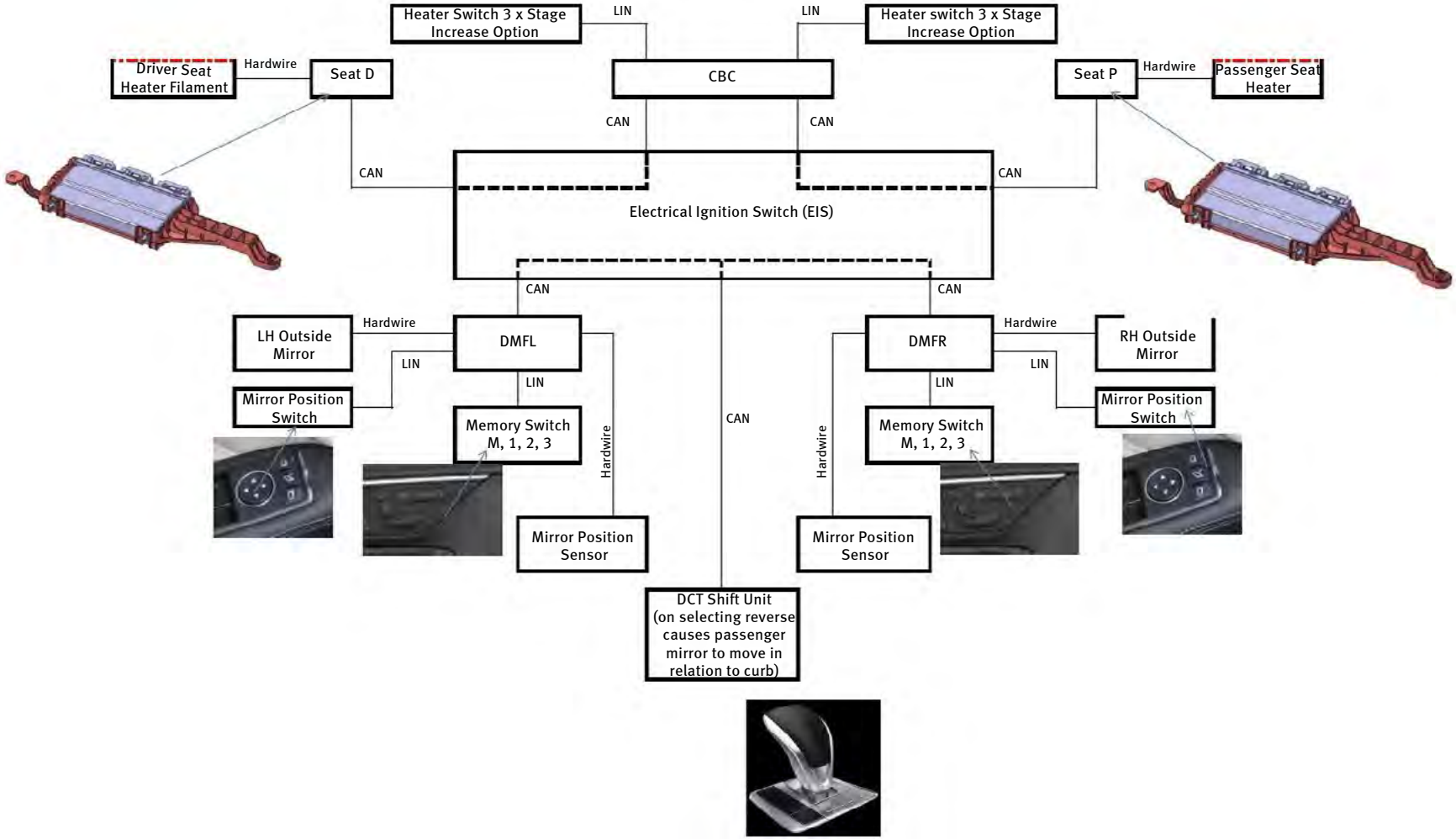


1. Lumbar Pump
2. Lumbar Switch
3. Lumbar Control Unit
4. Heated Seat Switch
5. Seat Back Heater
6. Cushion Heater

Seat Position and Memory

Driver and passenger ten-point power seat adjustment option includes three position seat memory storage, activated via separate door mounted seat switch panels.

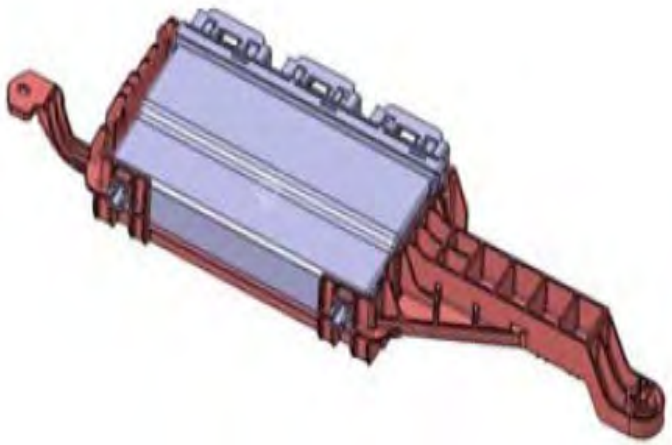
Seat memory positions are stored in the relevant seat position control module. Linked external door mirror positions and reverse gear passenger mirror park positioning is stored in the driver seat position control module, however. The EIS acts as the gateway to allow information to flow between the front door modules and the seat position control modules.



Seat Control Modules

Three versions of the seat position control module are available, depending on vehicle specification.

- Without heated front seats
- Power seat with memory and seat heating (driver side)
- Power seat with memory and seat heating (passenger side)



The automatic drive positioner system found on other Infiniti models, including entry/exit assist and I-key interlock function, is not currently included on QX30.

Seat Heaters

The three red indicator lights in each seat heater switch indicate the selected heating level. The system automatically switches between levels as follows:

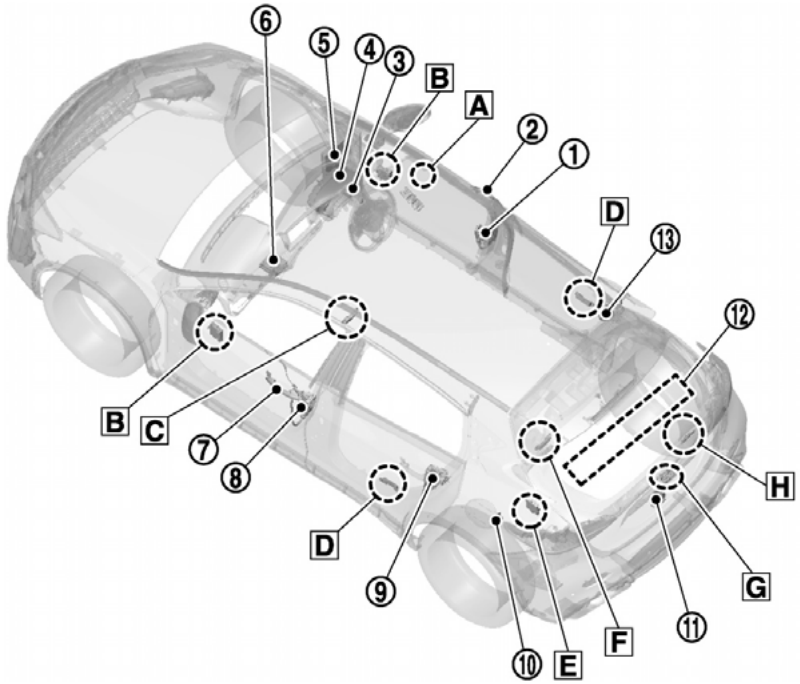
- Level 3 to level 2 after approximately eight minutes
- Level 2 to level 1 after approximately ten minutes
- Level 1 to OFF after additional 20 minutes

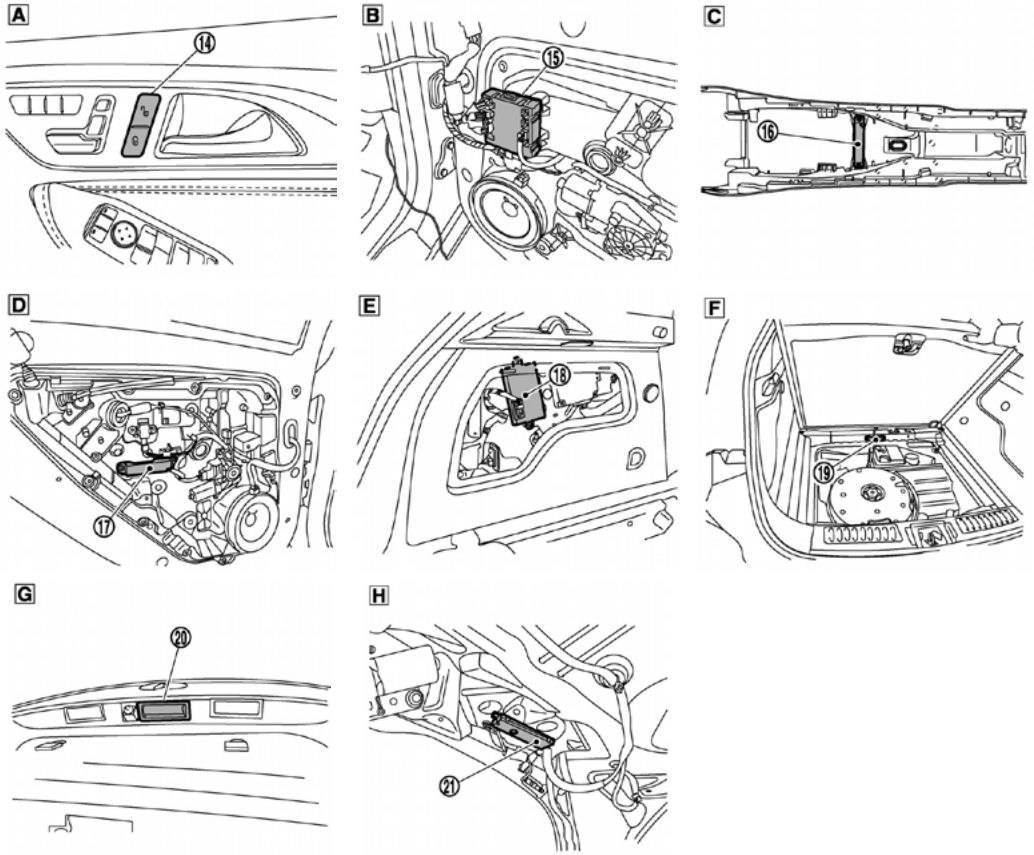
If the vehicle battery voltage is too low, the seat heating function may be switched off.

Security

Component Locations

Door lock control, engine start control and immobilizer component locations are shown below.

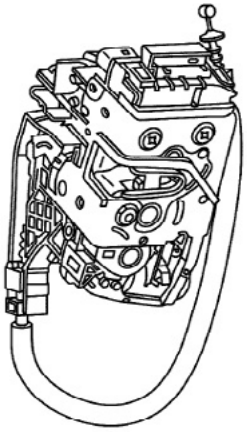




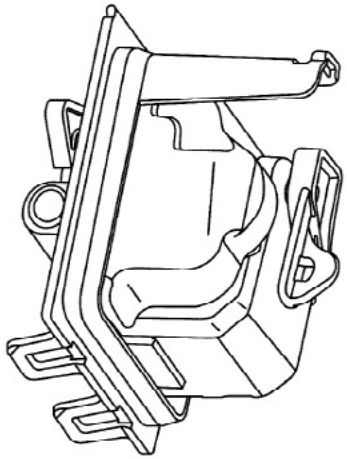
A. View with driver door
B. View with front door finisher removed
C. View with center console assembly removed
D. View with rear door finisher removed
E. View with luggage side finisher lid removed
F. View with luggage floor board removed
G. View with back door panel
H. View with back door inner finisher removed
1. Front Door Lock Assembly (Driver Side)
2. Right Front Intelligent Key Door Handle
3. Electronic Ignition Switch Control Unit
4. Combination Meter
5. BCM
6. Air Bag Diagnosis Sensor Unit
7. Left Front Intelligent Key Door Handle
8. Front Door Lock Assembly (Passenger Side)
9. Rear Door Lock Assembly LH
10. Fuel Filler Lid Lock Assembly
11. Back Door Lock Assembly
12. Window Antenna
13. Rear Door Lock Assembly RH
14. Door Lock and Unlock Switch
15. Front Door Control Module
16. Front Inside Key Antenna
17. Outside Key Antenna
18. Intelligent Key Unit
19. Rear Inside Key Antenna
20. Back Door Opener Switch
21. Remote Keyless Entry Receiver

Door Locks

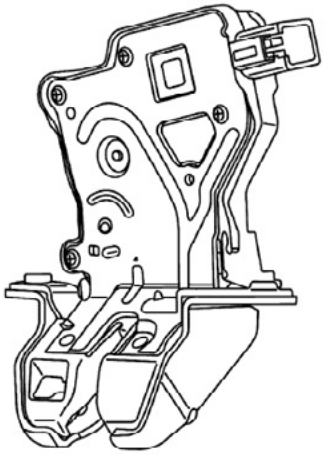
Electrical door lock mechanisms are fitted to all four doors, the rear tailgate, and the fuel filler lid. The driver door is the only door lock fitted with a mechanical key cylinder.



Door Lock

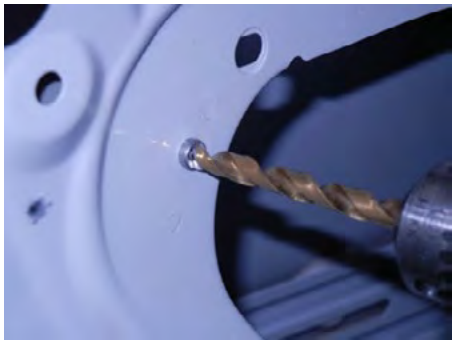


Tailgate Lock



Fuel Filler Lock

To remove a door lock, first remove the appropriate door finisher and drill out the rivets of the door module to gain access to the lock mechanism. A 7 mm drill is required.



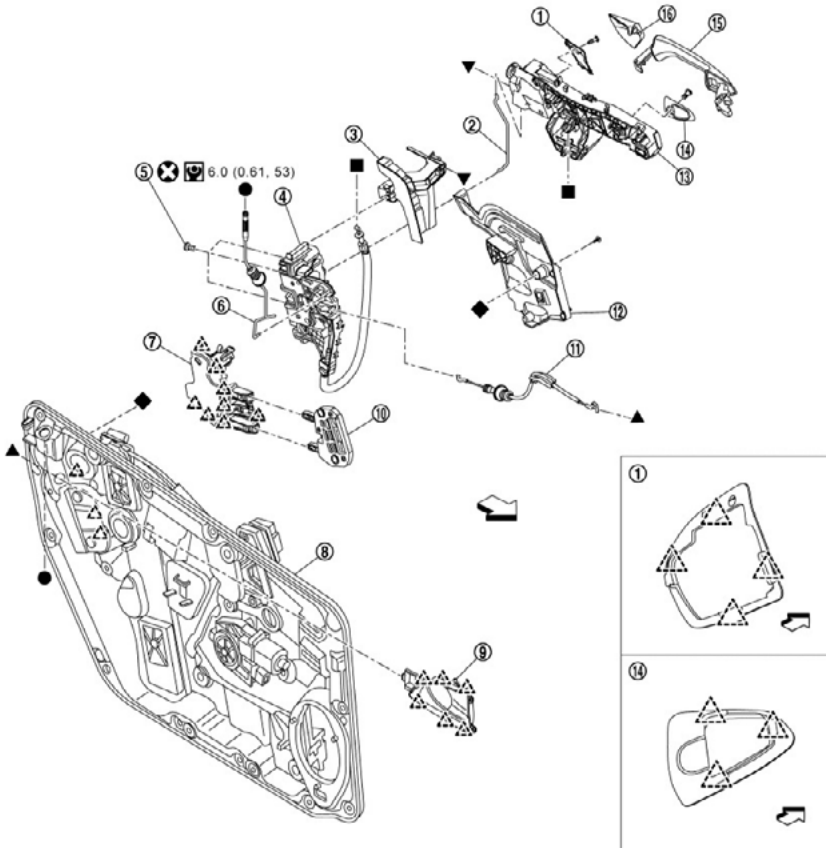
Front and rear left hand door modules are shown on the following page.

Service Point

Power electric window motors can be removed without removing the door module.

Note: Speaker replacement requires door module removal.

Front Door Module

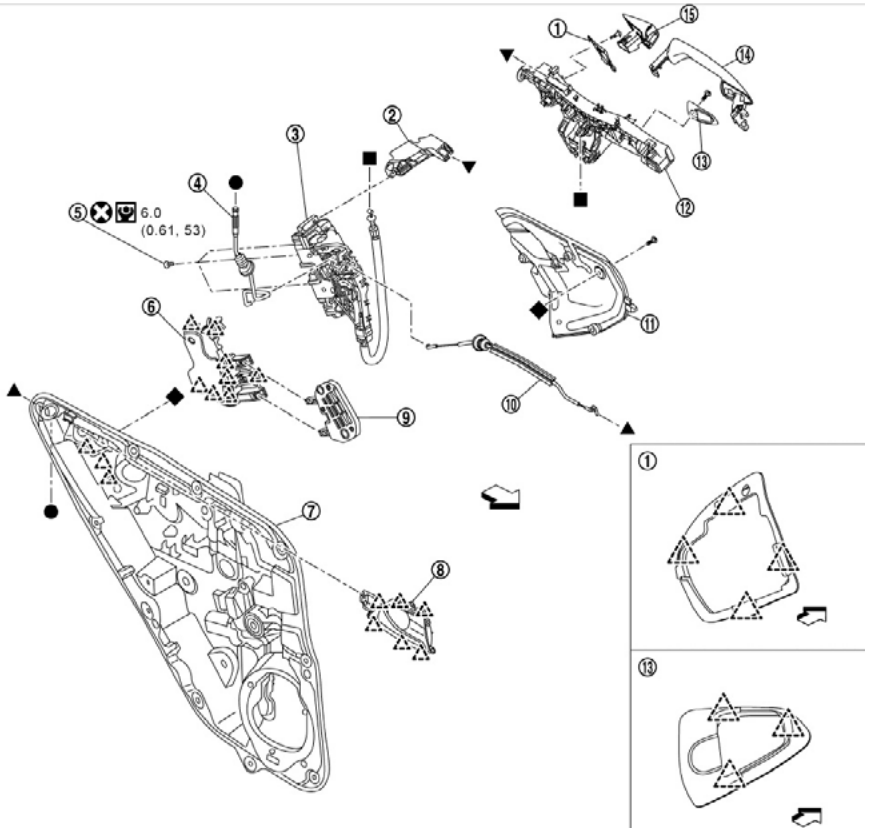


1. Rear Gasket
2. Key Rod (Driver Side)
3. Front Door Rear Sash
4. Door Lock Assembly
5. Torx Bolt
6. Lock Knob Rod
7. Door Lock Cover (Rear)
8. Front Door Module
9. Inside Handle
10. Door Lock Cover (Front)
11. Inside Handle Cable
12. Lock Knob Rod Connector
13. Outside Handle Bracket
14. Front Gasket
15. Outside Handle Grip
16. Outside Handle Escutcheon

Pawl

Vehicle Front

Rear Door Module



1. Rear Gasket
2. Rear Door Rear Sash
3. Door Lock Assembly
4. Lock Knob Rod
5. Torx Bolt
6. Door Lock Cover (Rear)
7. Rear Door Module
8. Inside Handle
9. Door Lock Cover (Front)
10. Inside Handle Cable
11. Lock Knob Rod Protector
12. Outside Handle Bracket
13. Front Gasket
14. Outside Handle Grip
15. Outside Handle Escutcheon

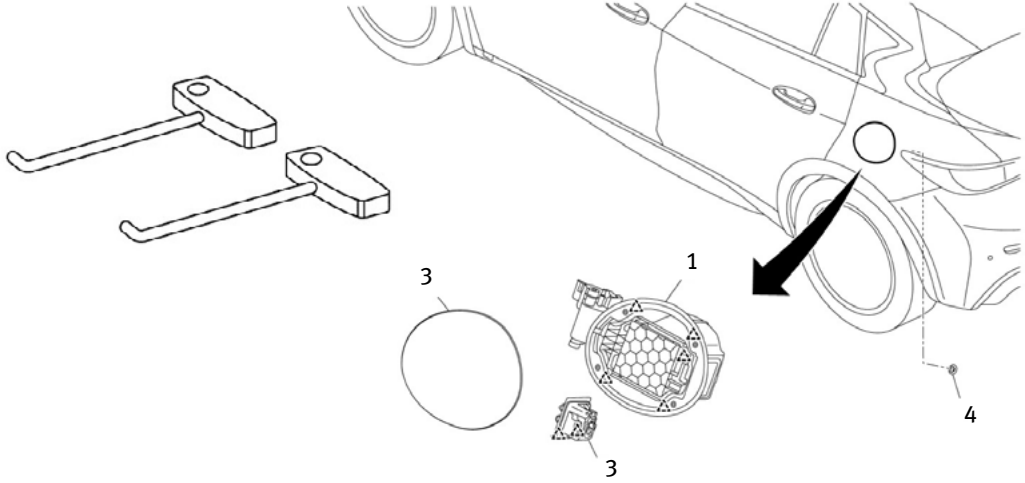
Pawl

Vehicle Front

To reinstall the door finishers, new rivets must be used with a commercial riveter.

Fuel Lid Assembly

Pulling hooks must be used to correctly remove the fuel lid base assembly.

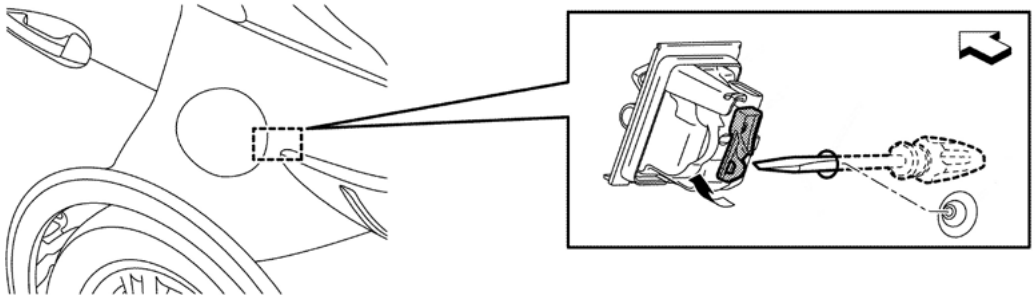


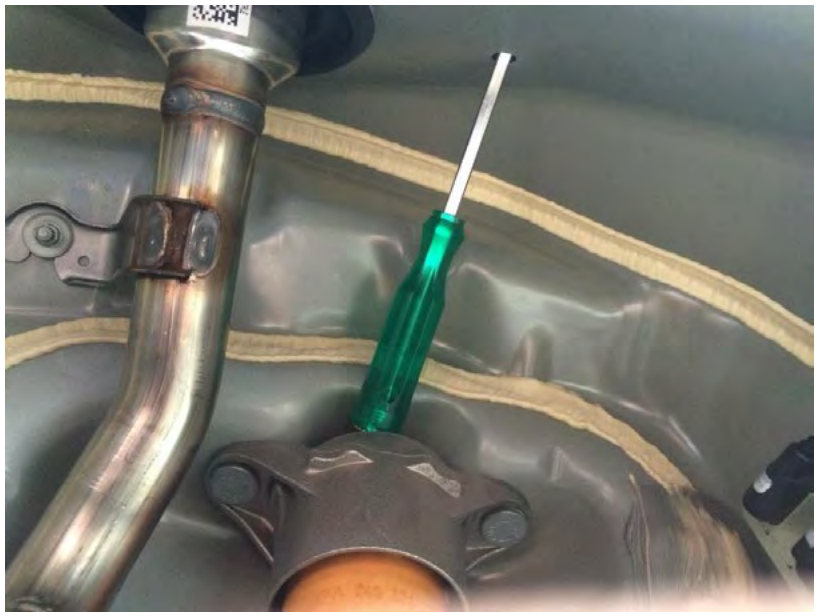
1. Fuel Filler Lid Base Assembly
2. Fuel Filler Lid Assembly
3. Fuel Filler Lid Opener Actuator
4. Grommet

△ Pawl

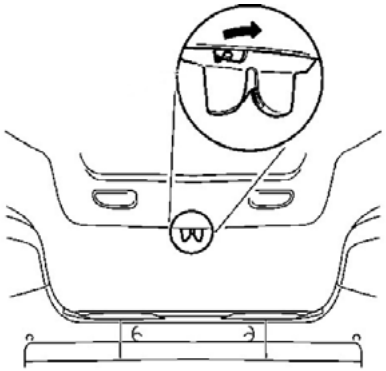
Emergency Fuel Lid Lock Release

Partial removal of the rear inner wheel arch liner allows access to the fuel lid release grommet.
Removing the grommet allows screwdriver insertion to press against the release latch as shown.



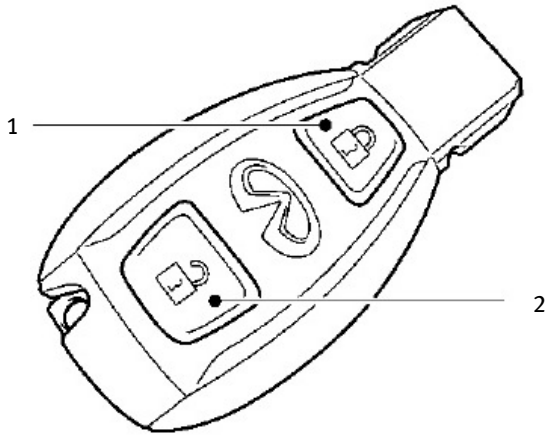


Emergency Tailgate Release



Door Lock Key Control

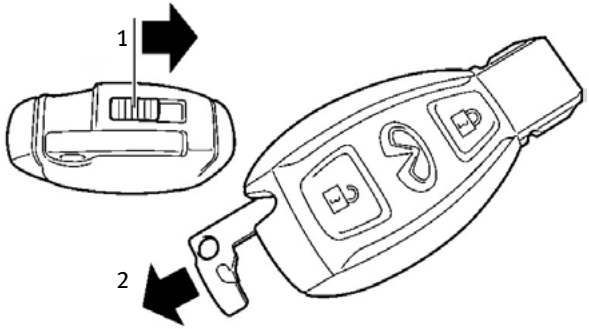
Both remote central door locking (without Intelligent key) and keyless entry options (with intelligent key) are available. Regardless of the option, vehicle key lock (1) and unlock (2) operations remain the same.



Certain trim levels may have color accents on the key fobs.

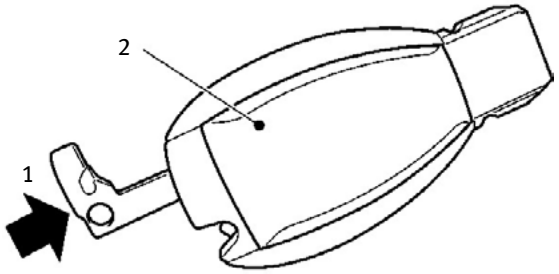
Emergency Mechanical Key

The release latch (1) allows removal of the emergency mechanical key.



Key Battery Replacement

Inverting the emergency mechanical key and replacing it in the key body releases the key cover to reveal the battery.



1. Key Blade
2. Battery Cover

Central Locking System

The system electronically locks/unlocks the vehicle doors, tailgate, and fuel filler lid, and can be operated by the following methods:

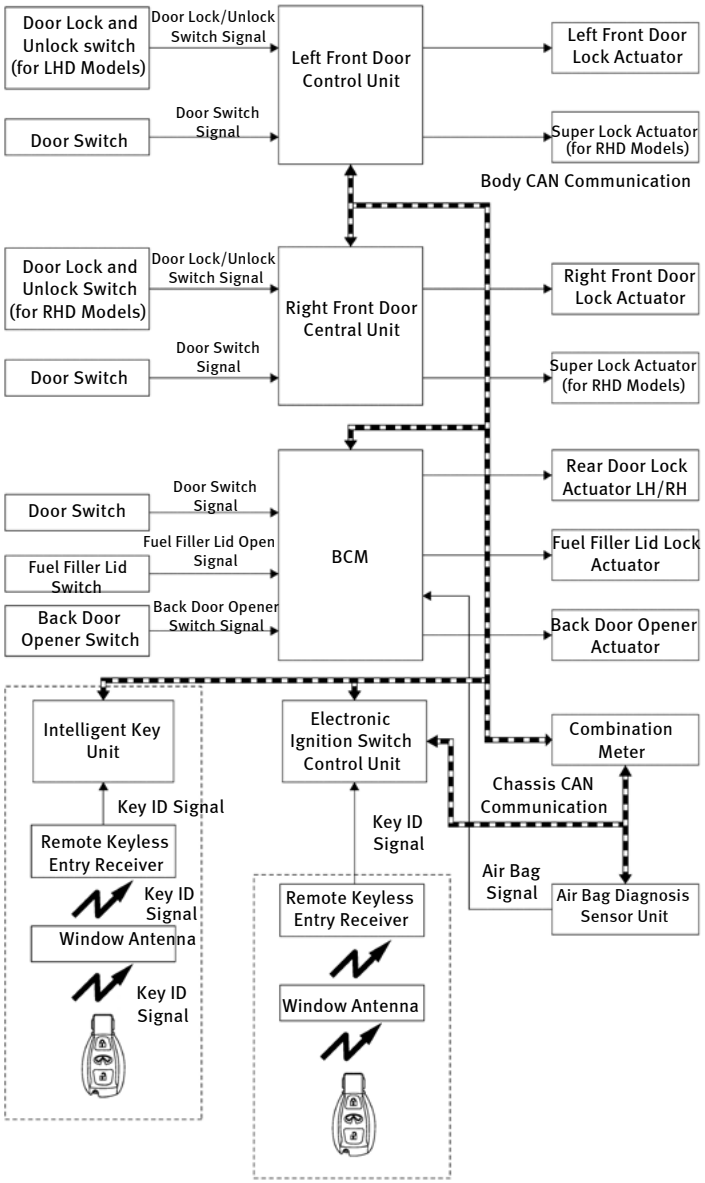
- Keyless (with intelligent key)
- Key fob (without intelligent key)
- Internal driver door lock and unlock switch

The central locking system features the following functionality:

- Tailgate opening
- Reminder function (one flash lock, two flash unlock)
- Fuel filler lid lock/unlock
- Selective unlocking*
- Auto re-locking
- Vehicle speed auto locking**
- Airbag deployment vehicle unlock
- Play (child) protection function

*Press key fob lock and unlock buttons simultaneously for approximately five seconds to switch feature On/Off.

**Press the appropriate driver door internal lock/unlock switch for approximately five seconds to switch feature On/Off.

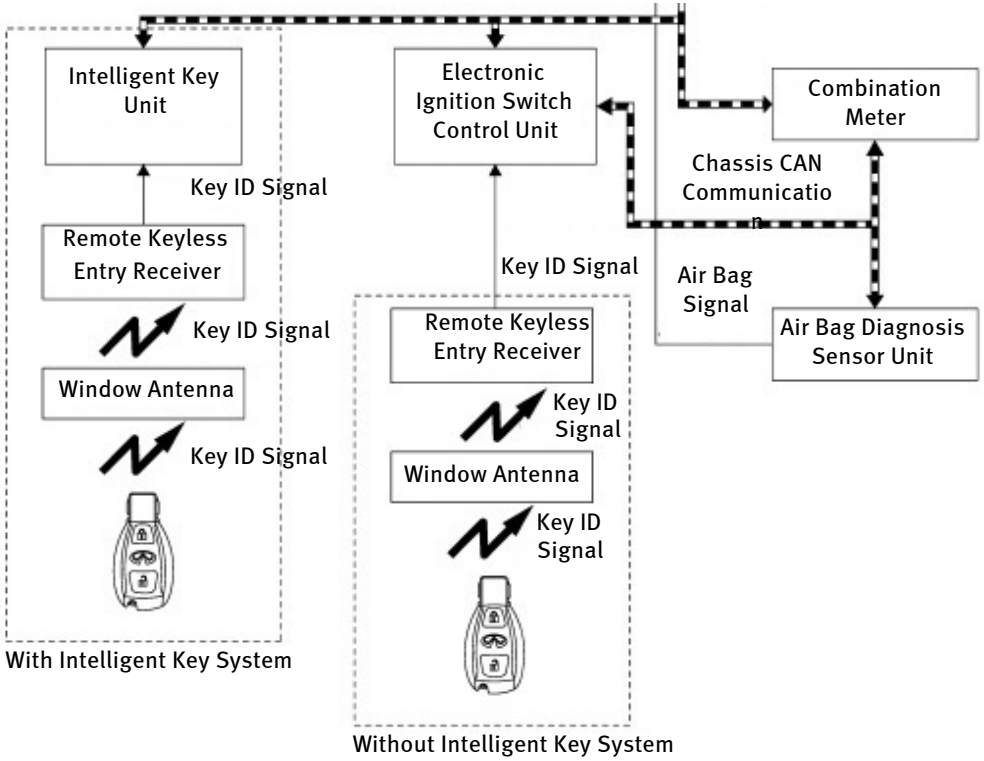


Remote Central Locking

Pressing the key lock/unlock buttons sends a fixed and variable code (315 MHz) to the remote keyless entry receiver fitted on the underside of the tailgate. Recognition of the key by the electronic ignition switch (EIS) allows entry/exit.

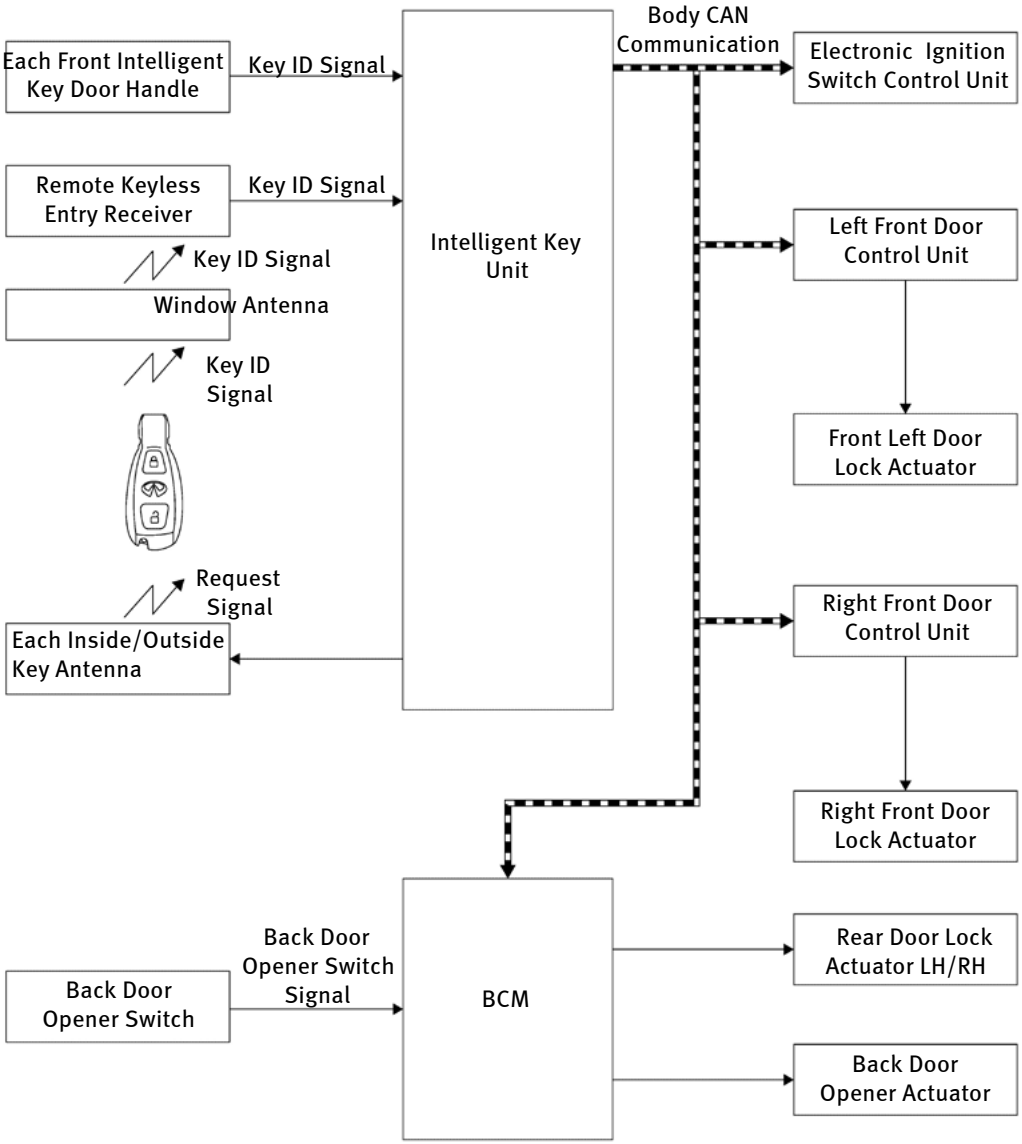
Keyless Central Locking

When either key button is pressed, fixed and variable codes are sent via the remote keyless entry receiver to the intelligent key unit. Key verification is then transmitted via CAN to the EIS.



Remote Keyless Entry Receiver

Intelligent Key System

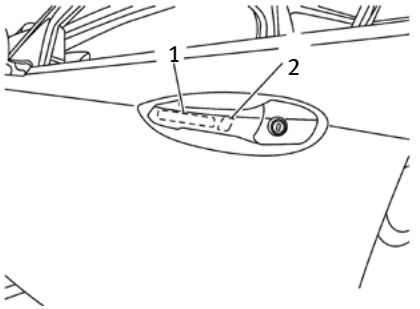


The intelligent key system offers a keyless entry alternative to the remote key fob central locking/unlocking featured on the previous page.
Additional components include:

- Front door intelligent key door handles
- Remote keyless entry receiver

Capacitive intelligent key front door handles detect the presence of a key.

- Grip (1) to unlock
- Touch (2) to lock



The appropriate outside antennas receives the key identification. This signal is read by the window mounted remote keyless entry receiver.

Intelligent Key Unit

The intelligent key unit controls the intelligent key system, and is installed behind the luggage room left side finisher. If replacing the unit, it must be configured with CONSULT III plus using a network connection to download (write) the new configuration.

Immobilizer

The immobilizer system on the QX30 prevents unauthorized vehicle entry and the engine from being started by unrecognized keys.
A CONSULT-III plus online registration and configuration procedure is required if any of the following immobilizer related control units is replaced.

- Electronic Ignition Switch (EIS)
- Engine Control Module
- Transmission Control Module (AT)
- Electronic Shift Control Unit (AT)

Up to eight vehicle keys can be registered to the EIS.
Key registration and key management are also completed online.
Key code validation takes place between the above control units every time a registered key is used.
A security indicator lamp, positioned in the upper control panel, blinks when the ignition switch is in any position other than ON to warn that the vehicle is equipped with an immobilizer.
Vehicle locking and unlocking has already been covered in this text and uses radio wave with fixed and variable transmitted codes in its operation.
When starting the engine, the EIS energizes the inserted key to transmit a pre-agreed infra red hash code that the EIS reads and sends on to the ECM via CAN.
Confirmation of previously agreed hash code by the ECM allows the engine start procedure to commence.

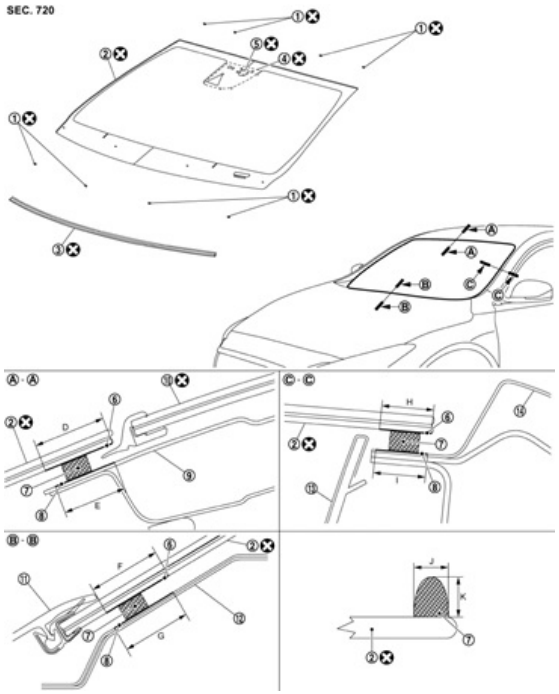
Vehicle Alarm

The system reduces the possibility of a theft or vandalism by sounding the horn and blinking the hazard warning lamps continuously. The system activates the horn and hazard warning lamps when it detects that the door or hood is opened, or there is an attempt to enter into the passenger room.

Glass and Windows

Windshield Glass

Piano wire can be used to cut adhesive if a windshield cutter is not successful.
Windshield glass should always be replaced with new glass after removal.

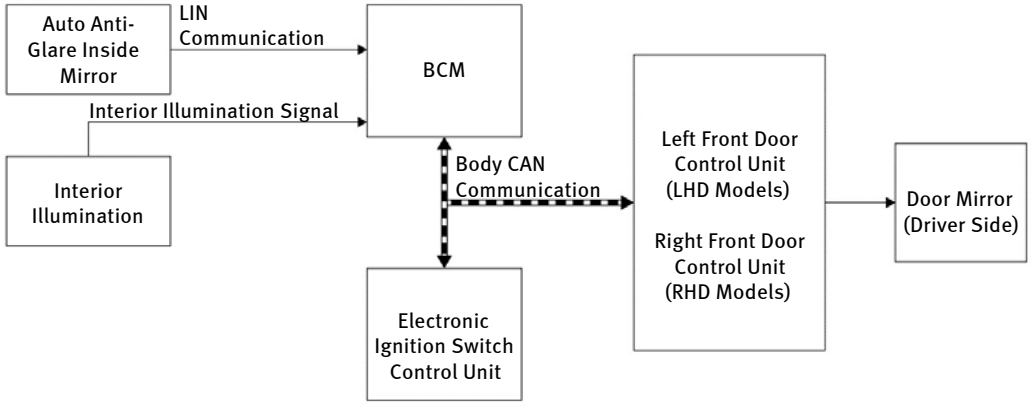


1. Windshield Glass Spacer*
2. Windshield Glass*
3. Windshield Glass Moulding*
4. Electric Unit Bracket*
5. Inside Mirror Base*
6. Glass Primer
7. Adhesive Painted Surface Primer
8. Roof Panel
9. Glass Roof
10. Cowl Top Cover
11. Cowl Top Panel
12. Front Pillar Garnish
13. Body Side Outer Panel

* Windshield Glass Assembly Parts

Interior Mirror

The sensor unit in the mirror detects the brightness of the headlights of the vehicle behind and automatically adjusts to reduce the brightness.



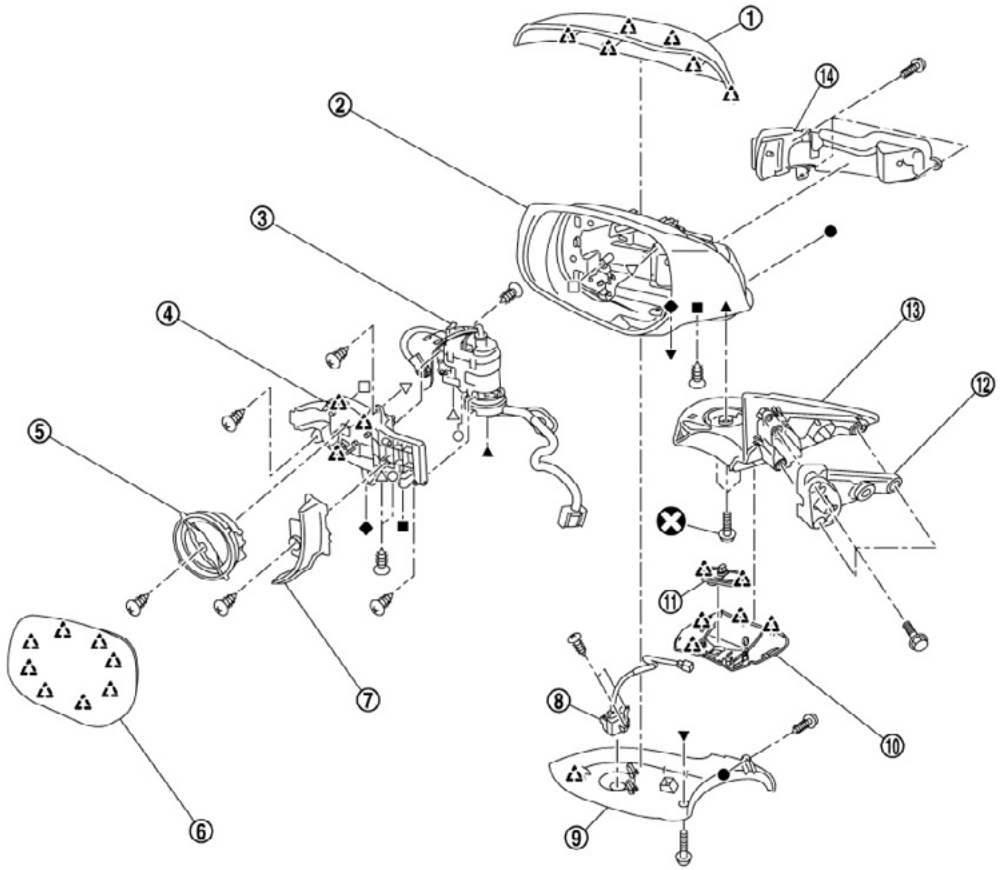
The system does not operate when reverse gear shift signal and illumination signal are detected.

Door Mirrors

Three types of door mirrors are available, depending on vehicle specification. All door mirrors are heated and fitted with puddle lamps.

- Electric fold
- Electric fold with camera
- Electric fold with memory and camera

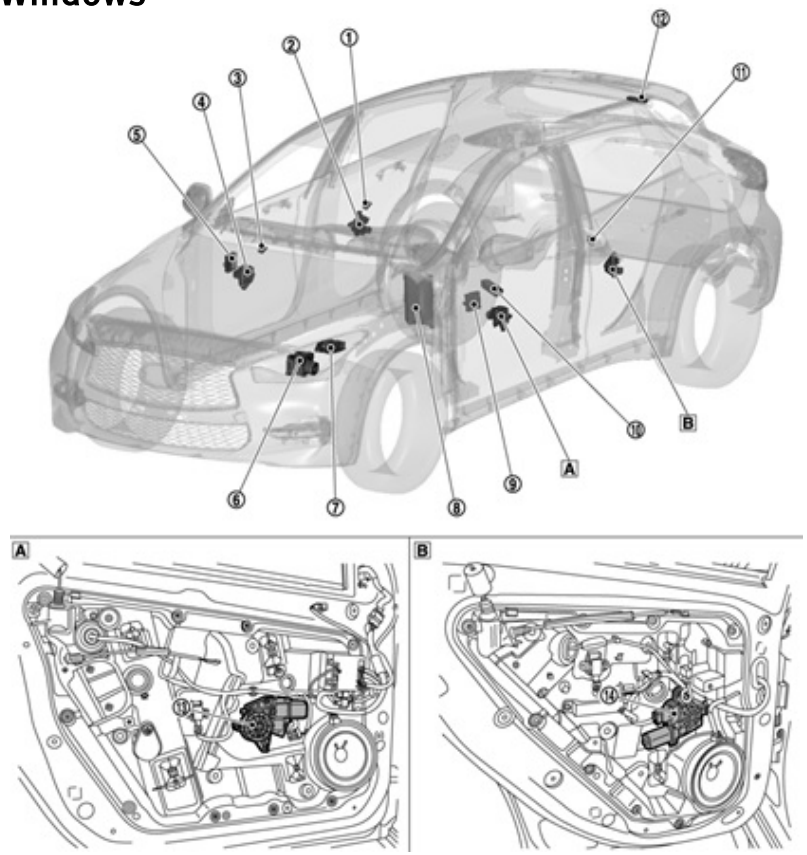
The mirror shown to the right is electric folding with memory and camera.



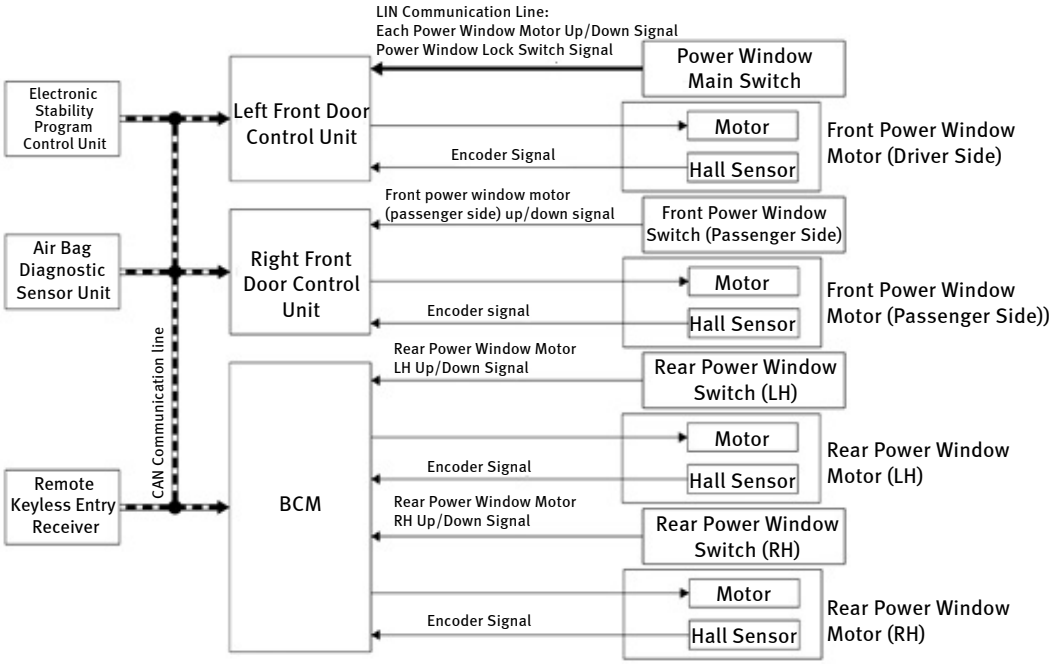
1. Door Mirror Cover
2. Door Mirror Housing
3. Power Folding Unit
4. Bracket
5. Actuator
6. Glass Mirror
7. Inner Cover
8. Side Camera
9. Door Mirror Finisher
10. Door Mirror Base Cover
11. Puddle Lamp
12. Door Mirror Gasket
13. Door Mirror Base
14. Side Turn Signal

△ Lamp Pawl

Power Windows



1. Rear Power Window Switch RH
2. Rear Power Window Motor
3. Front Power Window Switch (Passenger Side)
4. Front Power Window Motor (Passenger Side)
5. Right Front Door Control Unit
6. Electronic Stability Program Control Unit
7. Air Bag Diagnosis Sensor Unit
8. BCM
9. Left Front Door Control Unit
10. Power Window Main Switch
11. Rear Power Window Switch LH
12. Remote Keyless Entry Receiver
13. Front Power Window Motor (Driver Side)
14. Rear Power Window Motor LH



The power window system is activated by the power window switch when the ignition switch is turned ON. The power window main switch opens/closes all door glass. The front passenger and rear power window switches open/close the corresponding door glass.
AUTO UP/DOWN operation can be performed when each power window switch is pushed or pulled to AUTO operation position.
The power window lock switch can lock rear power windows.
If door glass receives resistance that is the specified value or more while power window is in AUTO-UP operation, the power window operates in the reverse direction.

Power Window Auto Operation

AUTO UP/DOWN operation can be performed when each power window switch is pulled or pressed to AUTO operation position. The Hall sensor detects the movement of the power window motor and transmits the hall sensor signal to the power window switch while the power window motor is operating.
The power window switch reads the changes of the hall sensor signal and stops AUTO operation when the door glass is at the fully opened/closed position.

LIN Communication

The power window main switch and left front door control unit transmit and receive LIN communication.
LIN communication transmits the power window main switch operation signals to the left front door control unit.

Rear Power Window Lock

When the power window lock switch is turned ON, it controls each rear power window switch and disables the operation of the power window by the rear power window switch.

Operation Condition

When all door glass AUTO-UP operation is performed, the anti-pinch function does not operate just before the door glass closes and is fully closed.

Pre-safe Function

When the electronic stability program control unit detects operation of the ABS system, all power windows close, but a gap of 1.8 – 2.2 in (46 – 54 mm) is maintained to minimize the risk of injury.

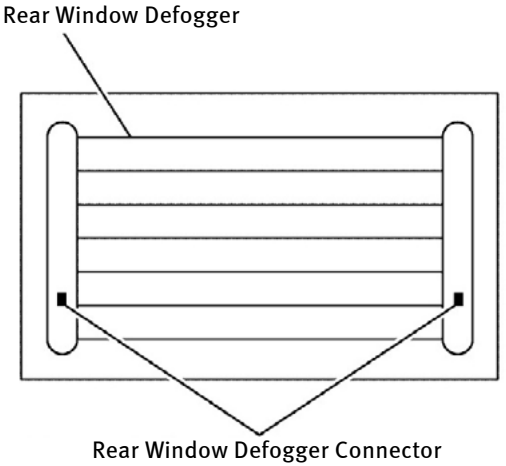
Crash Deflation Function

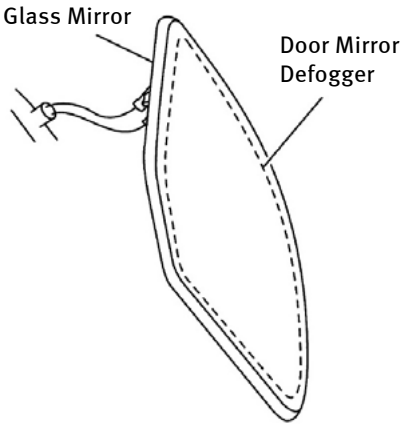
The air bag diagnosis sensor unit transmits an impact detection information signal via CAN communication to the left front door control unit, right front door control unit, and BCM. These modules then actuate all power window motors downward. This creates a gap to allow the smoke generated during air bag inflation to disperse.

Heated Rear Glass

The rear window and door mirror heating functions operate in tandem and require the following:

- Ignition ON
- No under or over voltage detected
- Consumer shutoff not active





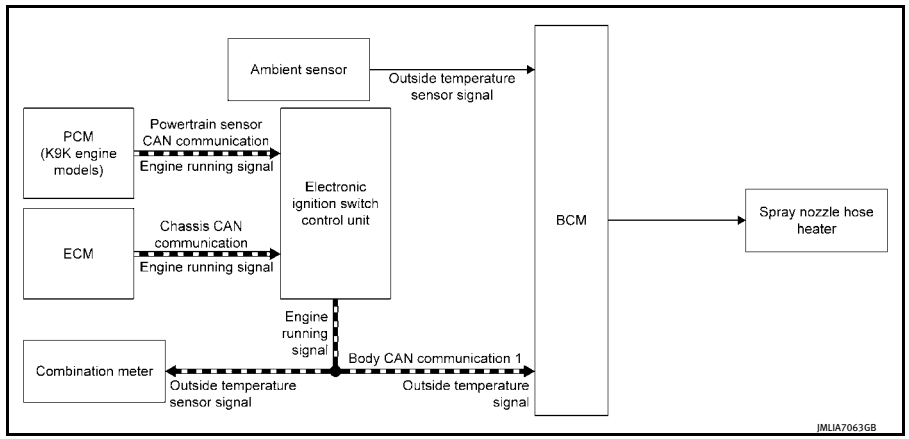
Within the door mirror heating function, there are a number of sub operations:

- Manual ON/OFF function - Air conditioning module reads rear window defogger switch status and activates rear screen and door mirror heating via the rear window defogger relay.
- Automatic switch-on function – To assist in engine cold start warm up cycle, the ECM requests defogger action to electrically load the engine (15 min).
- Determining switch-on duration function – Air conditioning module determines duration of defogger operation (2-26 min) based on outside air temperature and vehicle speed.
- Auto stop shutoff function – Defogger is switched off temporarily when the engine stops as part of the operation of the stop/start system.
- Consumer shutoff function – if excessive battery discharge is detected, the defogger function may be switched off temporarily (lamp remains lit).

Heated Washer System

Spray nozzle/hose heater operating conditions:

- Engine running
- Outside temperature is 41°F (5°C) or less



The spray nozzle and spray nozzle hose heater prevent the washer fluid in the spray nozzles and the spray nozzle hose from freezing.

Paint

QX30 paint is applied by a physical vapor deposition process that is completely new to Infiniti. It is considered the highest quality, most durable paint process currently available and provides a blemish free finish. At launch, the body exterior colors and codes include:

Paint Type	Color	Code
Solid	Black Obsidian	KH3
Metallic	Majestic White	QAB
Metallic	Blade Silver	KY0
Metallic	Graphite Shadow	KAD
Metallic	Malbec Black	GAC
Metallic	Magnetic Red	NAJ
Metallic	Chestnut Bronze	CAN
Metallic	Ink Blue	RBN
Metallic	Liquid Copper	NAX

Body

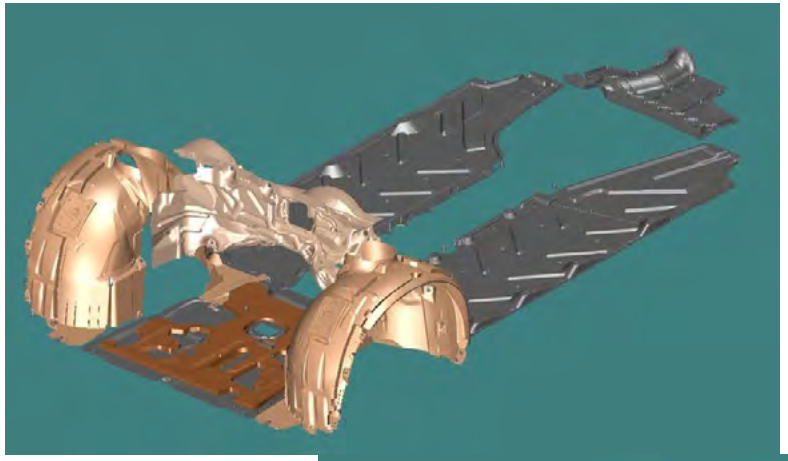
The use of high strength and ultra-high strength steel accounts for over 60% of the bodyshell construction. This saves weight while improving safety and crash protection. Panel materials include:

- Steel - Body construction. Door, trunk, roof, and side panels
- Aluminium - Sculptured hood
- Lightweight plastic - Front and rear bumpers, inner wheel arches, door mirror housings
- Glass roof - Optional

The mechanical tailgate is double strut damped and supports electric lock operation.

Noise, Vibration and Harshness (NVH)

Much attention has been made to minimize the intrusion of outside road and powertrain noise into the passenger compartment. Brown/beige components below are NVH and grey are primarily aerodynamic.



Front Side View

Rear Side View

Particular attention has been paid to the air flow and noise emanating from under the hood.

Front Wing/Door Shut Baffle

- Plastic insert
- Close fit provides barrier to airborne noise from engine and front wheel arch area
- LHS shown

Hood Hinge/Front Wing Baffle

- Plastic insert
- Foam backed
- Close fit provides barrier to airborne noise from engine and front wheel arch area
- Incorrect fitment can cause external door panel damage
- Door assembly must be removed from its hinges to replace
- LHS shown

Hood Sound Deadening

Styling

Overall QX30 styling is marked by dramatic curves and dynamic lines to make an emotional statement.

On Sport models, sills are body color coded to visually lower the stance.

A special metal plating process for the front Infiniti emblem allows the radar waves of the Intelligent Cruise Control (ICC) sensor to pass through the badge. This removes the unsightly need for a visible transmitter and is a first for Infiniti. Use of high quality materials accentuate the progressive styling further.

Satin chrome-plated trim is used instead of plastic chrome trim found on competitors.

There is a consistent use of black lacquer trim on many exterior elements.

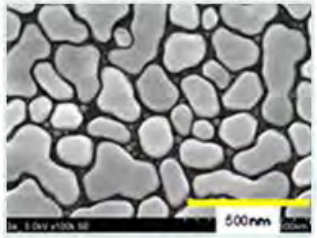
Infiniti signature grille hints at a bridge reflected in water creating a pattern that is not symmetrical.

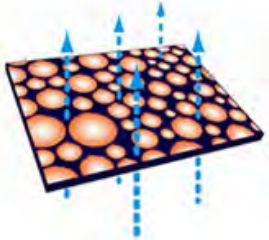
The hood flows up and over projecting a wave action that channels wind for aerodynamic efficiency.

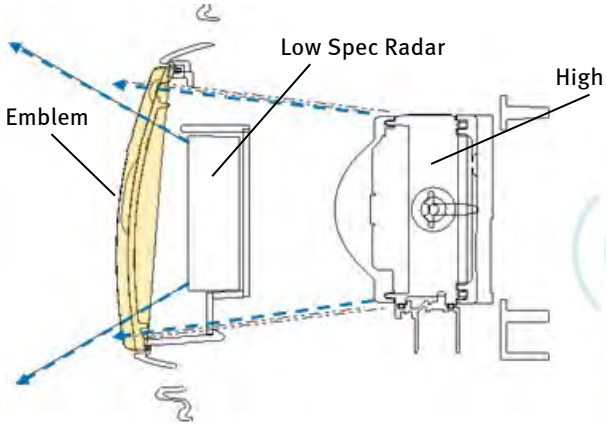
The rear quarter is non glass black lacquer with a satin chrome finish.

Emblem

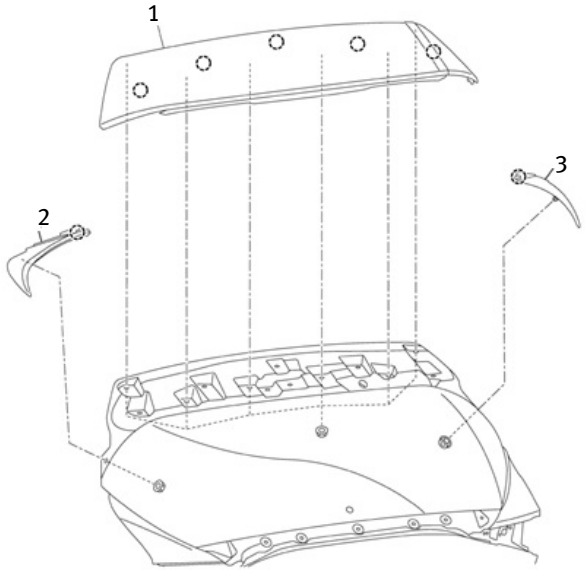
In addition to providing a high quality exterior appearance, the emblem is part of the safety system.
The metal plating method enables the radar wave to penetrate the emblem.







Rear Spoiler



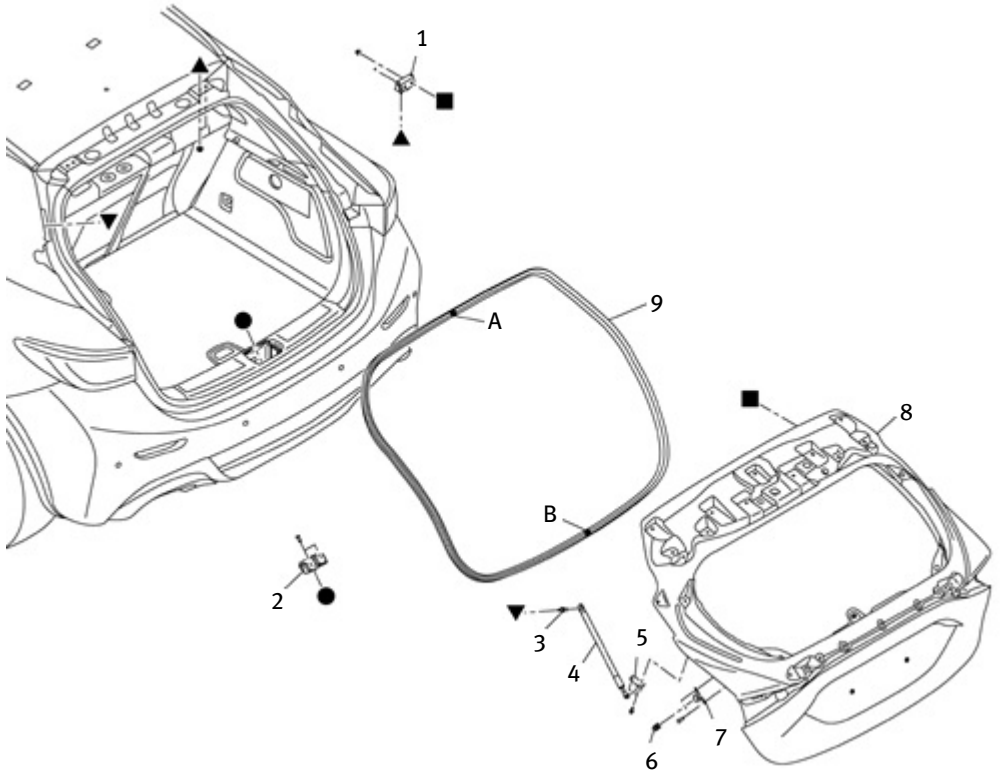
1. Rear Spoiler
2. Rear Side Spoiler LH
3. Rear Side Spoiler RH

Kick Plate

When removing the outer kick plate, always use a removal tool that is made of plastic to prevent damage.
Before installation, take the following precautions:

- Visually check clips for deformation and damage. Replace with new clips if necessary.
- Check that clips and pawl are accurately aligned with the portions on dash side finisher and center pillar lower garnish, and then install by pressing in.

Back Door



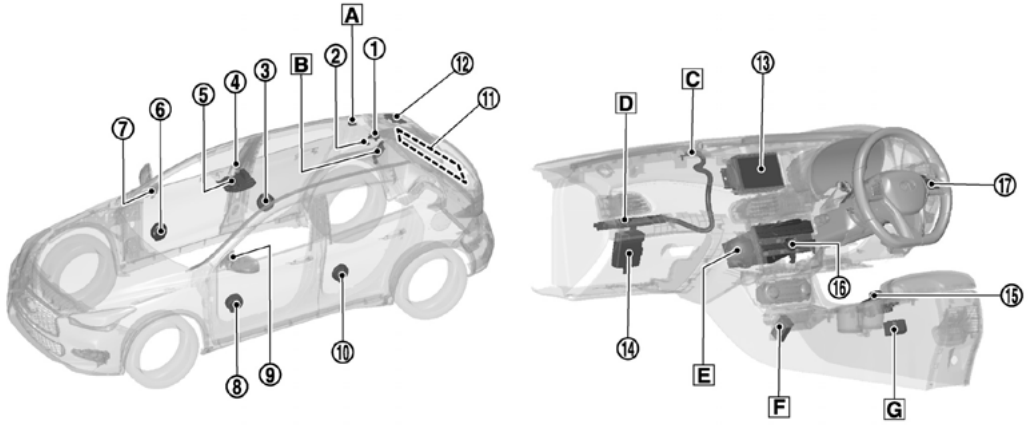
1. Back Door Hinge
2. Back Door Striker
3. Stud Ball
4. Back Door Stay
5. Back Door Stay Bracket
6. Bumper Rubber
7. Bumper Rubber Bracket
8. Back Door Panel
9. Back Door Weatherstrip

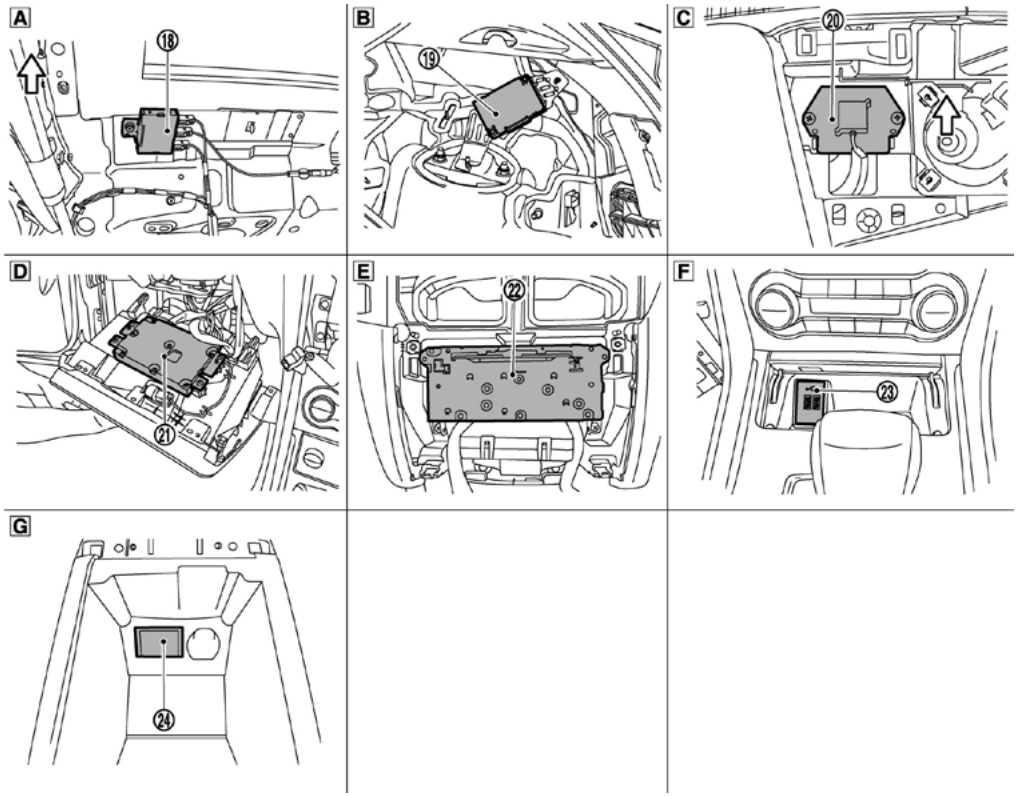
A. Center Mark
B. Seam

Audio Visual and Navigation

InTouch

The audio, visual, and navigation systems are supported by the now familiar Infiniti InTouch system.
The following component locations are for a vehicle without BOSE audio system.

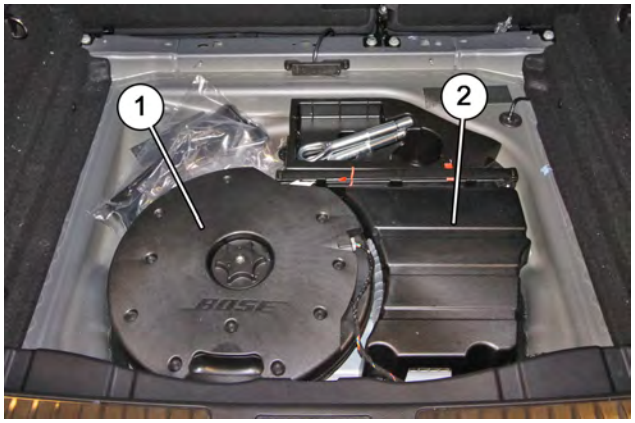




1. DAB Antenna
2. Rear Microphone (Active Noise Cancellation)
3. Rear Door Speaker RH
4. Front Microphone (Active Noise Cancellation)
5. Microphone
6. Front Door Speaker RH
7. Front Tweeter RH
8. Front Door Speaker LH
9. Front Tweeter LH
10. Rear Door Speaker LH
11. Sub Antenna (Window Glass)
12. AM/FM Main Antenna
13. Display Control Unit
14. CAN Gateway
15. Multifunction Switch
16. Preset Switch
17. Steering Switch
18. DAB Mixing Amp
19. Active Noise Control Unit
20. GPS Antenna
21. NAVI Control Unit
22. AV Control Unit
23. External Data Input Box (USB)
24. External Data Input Box (SD Card)

A. Headlining Removed Condition
B. Luggage Floor RH Side
C. Instrument Panel Upper
D. On the Glove Box
E. Instrument Panel Center
F. Within Center Console Pocket
G. Within Center Console Box

With BOSE, the main additions are a sub woofer (1) and amplifier (2) fitted in the spare wheel well.

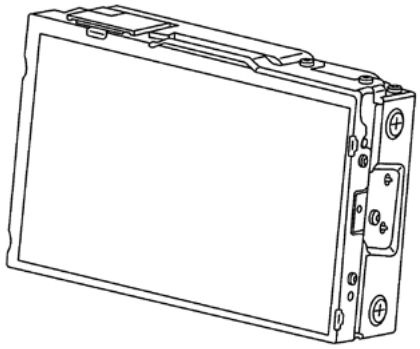


Display Control Unit

The display control unit controls the Infiniti InTouch screen and integrates the following functions:

- Display
- Bluetooth® module

The display control unit can store applications in the built-in memory by connecting a cell phone via Bluetooth® communication or USB connection.



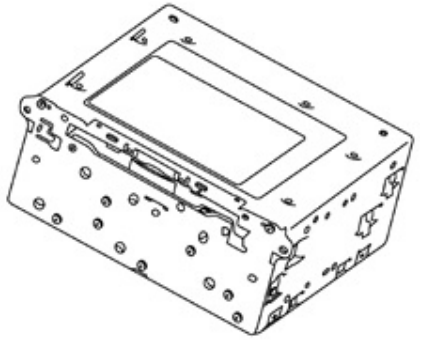
Display		Screen Size		8-inch Wide VGA (152.4 x 91.44 mm)
		Number of Pixels		800 x 480 Pixels
		Drive Type		TFT Active Matrix
		Touch Panel Detection		Firm/Glass Capacitive
Capacity (for Application Software)				512 MB
Bluetooth® Module	Bluetooth® Audio	Compliant Communication Type	Wireless Connection	Bluetooth® Communication
	Hands-free Phone			
Other Functions				Voice Recognition Function

NAVI Control Unit

NAVI control unit controls the navigation system of Infiniti InTouch.
It integrates a gyro sensor and acceleration sensor, and calculates the vehicle position by combining the vehicle speed signal, reverse signal, and location information received from the GPS antenna.
Map data is obtained from the SD card that is inserted in the external data input box (SD card slot).

AV Control Unit

AV control unit controls the audio system of Infiniti InTouch.



Amplifier Output (Models without BOSE)			40 W x 4 ch
CD Drive	Playable Disc		CD-ROM
			CD-R
			CD-RW
	Playable Format		MP3
			WMA
			AAC
	Text Display Function	ID3/WMA/AAC Tag	Artist Name
			Album Title
			Song Title

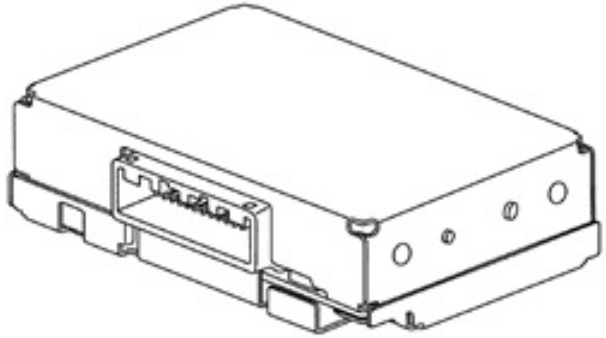
External Data Input (SD Card)

External data input box (SD card) records the map data from the SD card, and is then used by the navigation system.

External Data Input (USB)

External data input box (USB) comprises 2 USB ports. External devices can be connected and can send signals to the display control unit via USB communication.

Active Noise Control Unit



The active noise control unit includes the following functions:

- Active Noise Cancellation
- Active Sound Enhancement
- Diagnosis function with CONSULT-III plus

CAN communication lines connected to the active noise control unit are used for the active sound enhancement and diagnosis function with CONSULT-III plus.

Active Noise Cancellation

With BOSE

The front and rear microphones are used for the active noise cancellation system. The power is supplied from the BOSE amp to the microphone, transmitting sound signals to the BOSE amp during active noise cancellation.

Without BOSE

The front and rear microphones are used for the active noise cancellation system. The power is supplied from the active noise control unit to the microphone, transmitting sound signals to the active noise control unit during active noise cancellation.

Active Sound Enhancement

During driving, active sound enhancement improves the quality of engine sound heard in the vehicle by producing a sound via the speakers according to engine speeds.

The active noise control unit calculates the frequency, quality, and volume of engine sound from engine speed signal, engine torque signal, accelerator pedal position signal, and vehicle speed signal, and transmits the sound signal to AV control unit.

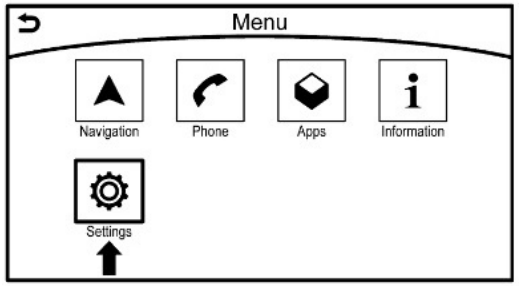
When the AV control unit receives the sound signal from active noise control unit, it transmits the sound signal to each speaker.

The AV control unit mixes the sound signal received from active noise control unit with the sound from audio, etc., and transmits the sound signal to each speaker.

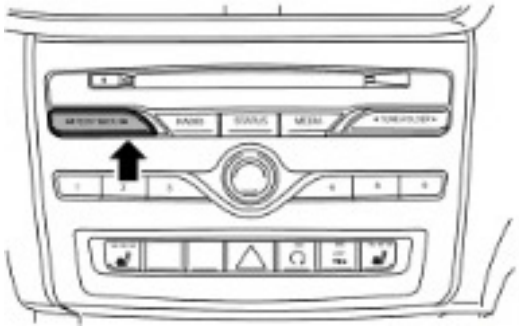
On-board Diagnosis

The InTouch display control unit is the only control unit on QX30 that has a self-diagnosis capability.
Activation of the on-board diagnosis is similar to the InTouch fitted to Q50.

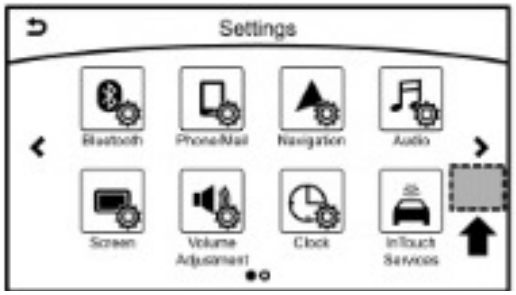
1. Start the engine.
2. Turn the audio system OFF.
3. Touch the Settings icon to enter the settings menu screen.



4. Press the seek/track up switch at least three times (within 15 seconds after the settings menu screen displays). If the self-diagnosis mode does not start after pressing the seek/track up switch more than four times, press the Menu switch again.



5. Touch the screen in the area shown in the illustration for three seconds or more.
6. The fault diagnosis initial screen is displayed, and then either Self Diagnosis or Confirmation/ Adjustment can be selected.



Details of these menu options are shown on the following page.

Mode		Description
Self Diagnosis		Display control unit diagnosis. Diagnosis of connections across system components.
Configuration/ Adjustment	Display Diagnosis	The following check functions are available: • Color tone check by color bar display, white display, and black display • Light and shade check by greyscale display • Touch panel check • Sensor sensitivity settings
	Vehicle Signals	Diagnosis of signals.
	Speaker Test	Speaker connection can be confirmed by test tone.
	Navigation[1]	Confirmation of GPS reception status. Display simulated navigation menu.
	Error History	Display of error history. Select the malfunctioning item to display further detail.
	AV COMM Diagnosis	Communication condition of each Infiniti InTouch unit.
	Clock Setting[1]	Adjustment of date and time.
	Camera Control	Camera control signal check. Guide line position adjustment.
	Delete Unit Connection Log	Erase connection history of unit and error history.
	Reset Settings	Reset data settings.
	Version Information	Version information is displayed for the display control unit, NAVI control unit, AV control unit, BOSE amp, preset switch, and around view monitor unit.
	Program Update	Update of control unit.
	DAB	Display information relating to DAB function.
	Switch Information	Display switch information.
	ANC/ASC Diagnosis[2]	Display active noise cancellation and active sound enhancement.
	Hands-free Phone	Volume adjustment of hands-free phone. Microphone speaker check.

[1] Only models with navigation system

[2] Models with BOSE audio system

Around View Monitor

Incorporated in the InTouch system around view monitor (AVM) is the familiar system seen on other Infiniti models.

AVM Control Unit

The AVM control unit is located in left side of the luggage room.

Navigation System

The navigation system can be operated with the preset switch, multifunction switch, and display control unit.

Refer to the owner's manual for additional details.