



2011 Nissan Murano CrossCabriolet Soft Top Operation and Diagnosis



Technician Workbook

May 2011



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

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THROUGH TECHNICIAN
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TABLE OF CONTENTS

Section 1	<i>Training Course Preparation</i> General Information Course Objectives Workstation Overviews Shop Preparation Windshield Placards
Section 2	<i>Instructor Preparation Guidelines</i> Course Preparation Suggested Training Agenda
Section 3	<i>Annotated Technician Course</i> Instructor Sign-off Sheet Course Map Instructor Sign-off MATRIX Technician Text Section Modules
Section 4	<i>Instructor Aids</i> PowerPoint Slides List Instructor Notes Pages
Section 5	<i>Notes Section</i> Job Aids Notes Course Reaction Survey



TABLE OF CONTENTS

Course Objectives

Course Procedures: 2011 Nissan Murano CrossCabriolet New Technologies

Technician Creed and Code of Conduct

SECTION 1: Text

2011 Murano OVERVIEW	1
Standard Features.....	2
Mechanical	2
Exterior.....	2
Interior.....	2
Technology.....	3
Convertible Top System Operation - Open and Close	3
Components.....	5
Electric and Hydraulic System Operation	6
Convertible Top Operation.....	7
Full close to full open:.....	7
Full open to full close:.....	9
Storage Lid Assembly.....	12
Hall-effect Switches.....	14
Convertible Top Diagnosis	15
Convertible top indicator light status:.....	15
Convertible top chime status:	17
CONSULT-III Plus Function.....	18
Self-Diagnosis	18
Diagnostic Scenario.....	19
Manual Top Closing	20
Convertible Top Adjustments	26
Storage Lid Adjustment.....	27



Soft top adjustment.....	28
Fabric Removal	32
Convertible Top Removal	39
Headliner removal.....	42
Precautions.....	43
CONSULT-III Plus.....	44
Tire Repair Service Kit.....	47
New technologies	49
Audio System	49
Heated Seats	50
Heated Steering Wheel.....	50
Murano CrossCabriolet Restraints.....	52
Advanced Air Bag System (AABS).....	52
Occupant Classification System (OCS).....	53
Door-mounted Curtain Side Air Bag and Seat-Mounted Side Air Bag	53
Disassembly Procedure	54
Dual Rear Pop-Up Roll Bars.....	54
Deployed Position	55
Pop-Up Mechanism	56

SECTION 2: Modules

Sign-off sheet

Course Map

Module 1: Convertible Top Discovery

Module 2: CONSULT-III Plus Data Monitor

Module 3: Manual Top Opening

Module 4: Top Adjustments

SECTION 3: Notes



COURSE OBJECTIVE

Upon completion of this training program, given a 2011 Nissan Murano CrossCabriolet and a CONSULT-III Plus, you will be able to:

- Identify soft top convertible components and the location for each of the items in the module
- Use CONSULT-III Plus to review the available convertible top data
- Use CONSULT-III Plus to monitor each of the signals while diagnosing a fault in the convertible top operation
- Identify the soft top convertible components used for releasing the soft top from its storage position
- Manually close the top using procedures detailed in the text and ESM
- Inspect the top fit to the body
- Identify the various adjustments for positioning the 1st and 5th bows to the body.
- Modify the 5th bow adjustment
- Identify how the 5th bow adjustment changes the top alignment to the body
- Identify all adjustment points
- Measure all adjustment points, determine if adjustments are necessary



COURSE PROCEDURES

2011 NISSAN MURANO CROSSCABRIOLET NEW TECHNOLOGIES

Nissan Competency Based Training:

Class starts promptly at 9AM. Please be in your seat and ready to begin at 9AM. 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 time 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 2011 Nissan Murano CrossCabriolet. 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 and use the text in the future as a resource to answer questions about the technology and systems unique to this vehicle.

Course Map:

The Course Map identifies the order in which Modules must be completed. In the case of the 2011 Murano CrossCabriolet New Technologies course, the Discovery Worksheets must be completed before you begin the other modules.

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 Plus 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 Plus 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 it were a customer’s car. 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 Plus, 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 Plus and connect it to the charger as needed. For this course we expect you to be comfortable using CONSULT-III Plus 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.



ATTITUDE IS EVERYTHING!



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2011 MURANO OVERVIEW



The new 2011 Nissan Murano[®] CrossCabriolet[™] is a first in the automotive industry, a 2-door crossover convertible.

The Murano CrossCabriolet[™] shares the D-platform with the standard Murano, Altima, Maxima, and the Quest. We started with the venerable VQ35DE 3.5L engine and Xtronic[®] CVT (Continuously Variable Transmission) to keep the “sport” in sport utility. We then included, as standard equipment, Nissan’s 4-wheel Limited Slip (ABLS) and 4-wheel disc brakes with electronic brake-force distribution (EBD). Intuitive All-Wheel Drive (AWD) is coupled with high ground clearance to ensure all-weather capability.

Many convertibles sacrifice passenger comfort for the sake of top-down style, not so with the CrossCabriolet. We designed a low profile soft top that keeps the sleek lines of the standard Murano without giving up true 4-passenger comfort. When the top is up, the rear passengers can experience an industry first, a convertible top with Skylite glass so they can always have that open air feel. The aerodynamics have been tweaked not only for efficiency but to provide superb airflow characteristics above and around the vehicle, resulting in a pleasant cabin with the top and windows in any configuration. Even the Bose[®] audio system knows when the top is up or down, adjusting the sound settings to provide superb sound reproduction in every situation.

Nissan didn’t forget that a vehicle still has to be practical. In this vein, Nissan has equipped the CrossCabriolet with Smart Entry, and enough cargo space for two sets of golf clubs, or two carry-on bags and a case of wine with the top down.



Standard Features

Mechanical

- VQ35DE 6-cylinder, 3.5-liter engine
 - Standard horsepower/torque rating: 265 hp, 248 lb-ft torque (198 kW, 336 Nm)
- Xtronic® CVT
 - Smooth and “stepless” ratio changes
 - Improved fuel economy and seamless acceleration
- Intuitive All-Wheel Drive (I-AWD)
 - Stable starts on any type of road
 - Excellent all-weather performance and traction
 - Improved economy
- Vehicle Speed Sensitive Electric Power Steering (EPS)
- Electronic Brake-force Distribution (EBD) and Brake Assist (BA)

Exterior

- Aggressive sports/crossover styling cues
 - Styling inspired by the 370Z
- Skylite convertible top
- 20 in. alloy wheels
- 235/55R20 all-season tires
- High Intensity Discharge (HID) bi-functional xenon projector headlights
- LED rear taillights
- Body-colored dual power/heated outside mirrors
- Chrome door handles
- Rear window defroster with timer
- Rain-sensing front windshield wipers

Interior

- 4-passenger seating capacity
 - Heated leather seating
 - Heated steering wheel
 - 8-way power driver's seat with lumbar adjustment



- 6-way manual passenger seat with Smart Entry
- Storage locations:
 - Dual level center console, sunglasses holder, coin holder, cell phone holder
 - Glove box, dual seatback pockets, front door map pockets

Technology

- Bose[®] 8-speaker sound system
- Standard iPod[®] interface
- Bluetooth[®] hands-free phone system with steering wheel controls
- Nissan Hard Drive[®] navigation system with GPS, 7 in. touch-screen and voice recognition
- XM[®] weather information
- XM[®] traffic information
- Point-of-interest search
- 9.3 GB Music Box[®] hard drive
- XM[®] satellite radio

Caution:

While the soft top operates, the door glass (power windows) cannot be operated. Door windows remain down even when soft top operation completes.

Convertible Top System Operation - Open and Close

The Cross Cabriolet is a soft-top convertible that is electrically controlled and hydraulically actuated. The top consists of a hydraulic control unit, hydraulic pump, hydraulic cylinders, hydraulic lines and motors, switches, and sensors. The soft top can be operated with the console-mounted switch or with request switches located on the outside door handles. The request switches control the open operation from the closed position and must be depressed during the entire operation. The top cannot be closed using a door request switch.



Door Request Switch



Console Mounted Switch

Operation is available when all of the conditions below are satisfied.

Ignition Switch:	ON
Vehicle Speed	3 mph (5 km/h) or less
Battery Voltage	Approximately 10V or above
Trunk Lid	Closed
Shift Lever Position	Other than R position
Power Window	Ready to operate
Ambient Temperature	Above 32°F (0°C)
Tonneau Board	Latched

If the operator is holding the I-key fob, the soft top can be opened via both the driver side and passenger side door request switches.

The operation procedure is as follows:

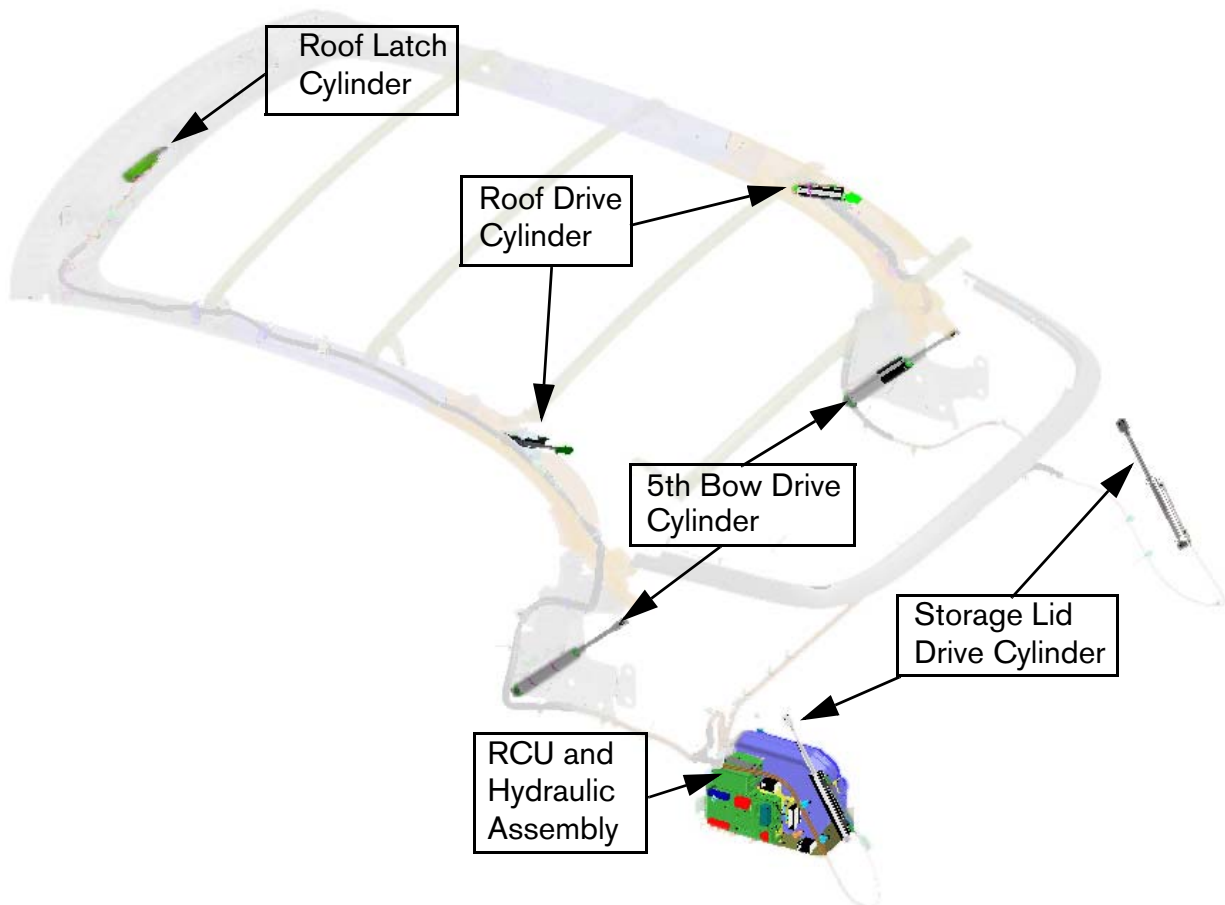
1. Press and hold the request switch. The key fob must be within 2.6 ft. (80cm) from the outside handle.
2. All doors unlock and the soft top starts the open operation.
3. Keep the request switch pressed until the soft top opens completely. Operation immediately stops if the request switch is released.

Components

The hydraulic pump assembly is located in the trunk on the left side, with a cover installed over it for noise reduction. The hydraulic pump is not serviced separately. If the hydraulic pump requires replacement, it is serviced as an assembly with the hydraulic cylinders and lines.

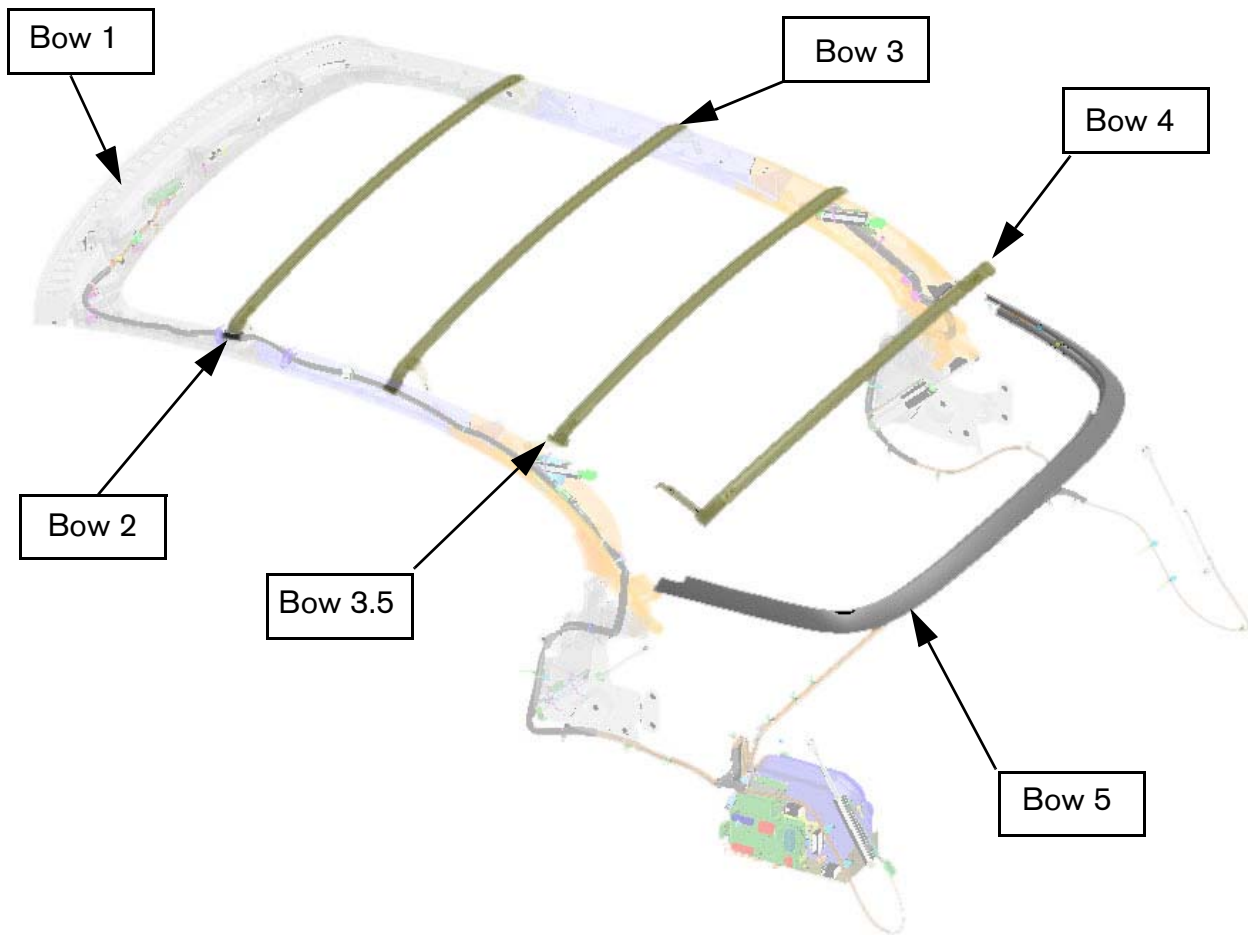
There are seven Hall-effect switches, one mounted on each hydraulic cylinder, these are serviced with the hydraulic system. The hydraulic cylinders are in the following locations:

- Roof Latch Cylinder (1)
 - Latches and unlatches both header latches
- Roof Drive Cylinder (2)
 - Articulates the 5th bow
- 5th Bow Drive Cylinder (2)
 - Stows or unfolds the top assembly
- Storage Lid Drive Cylinder (2)
 - Articulates the storage lid cover





The convertible top is serviced as separate sub-assemblies under most circumstances. The headliner, convertible top canvas, and roof control unit are each serviceable separately. The hydraulic pump, hydraulic cylinders, hoses, and Hall-effect switches are replaced as an assembly. The convertible top canvas is supported by five bows that are attached to the top frame. These bows are numbered bow 1 through bow 5, from front to rear. As the convertible top is articulated, the bows act on bungee cords to fold the headliner material as the top folds. The bungee chords can be serviced separately from the headliner if needed. There are two guide pins and two strikers mounted on the first bow; one hydraulic cylinder operates the two strikers. There is a position sensor on each striker to monitor the position of the locking mechanism. The position sensor is provided on the 1st bow to monitor the lock status.

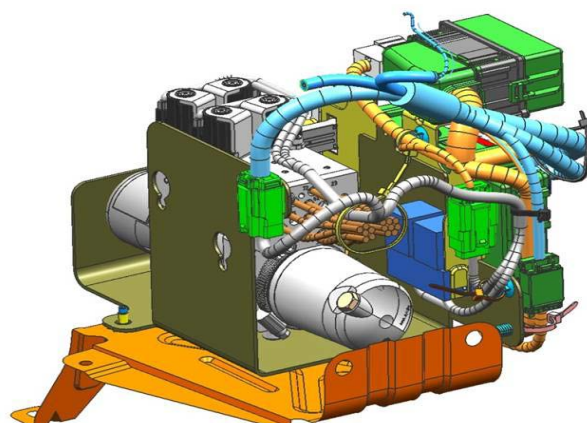


Electric and Hydraulic System Operation

The roof control unit is mounted to the hydraulic pump assembly, located in the cargo area behind the trim panels. The Roof Control Unit (RCU) is replaceable. When replacing the RCU, remove the pump bracket from the body first because the 3 RCU securing hooks are behind the pump bracket.



Roof Control Unit



Hydraulic Assembly

The RCU does not require initialization because it reads each actuator position each time it is operated. The hydraulic unit consists of a hydraulic pump motor that drives the hydraulic pump; hydraulic pump relays 1 and 2; switching valves 1,2,3,4 and 5; and the hydraulic pump temperature sensor. The hydraulic pump controls the hydraulic system operation according to control signals received from the roof control unit. Hydraulic pump relays 1 and 2 control the direction of the hydraulic pump motor rotation. The switching valves control the hydraulic circuits for each cylinder. The temperature sensor mounted on the hydraulic assembly measures the temperature of the hydraulic pump and fluid

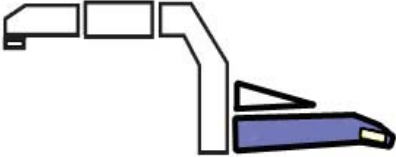
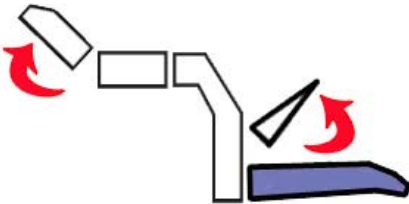
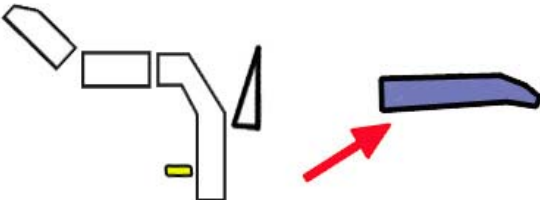
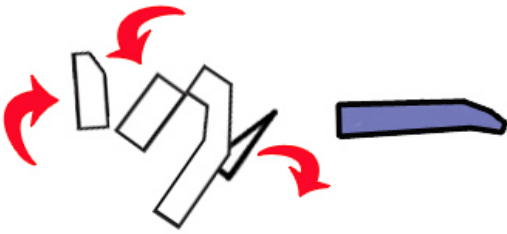
Convertible Top Operation

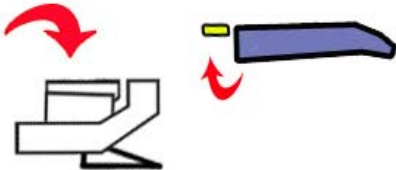

The following table outlines the convertible top operation from full close to full open, then from full open to full close

Full close to full open:

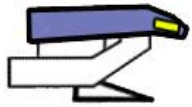
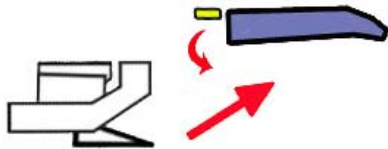
	Status of top	Action
1		<p>The top status is fully closed and locked.</p>



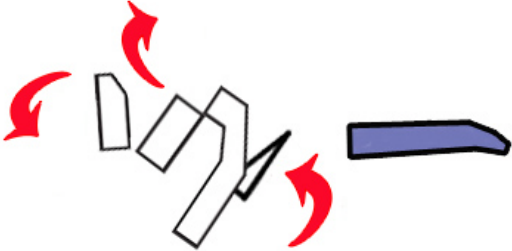
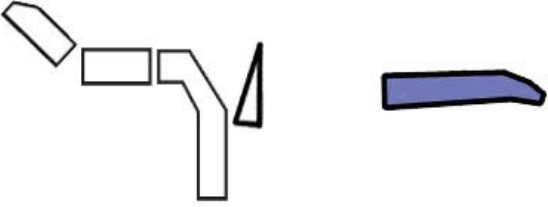
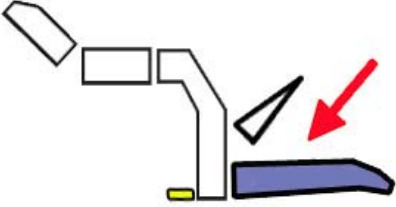
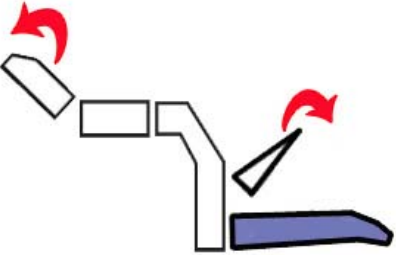
2	 A schematic diagram of a car's interior roof rack mechanism. A white frame is shown with a blue storage lid partially attached. A small rectangular latch is positioned to engage with the lid.	The front latch unlocks.
3	 The diagram shows the white frame with the blue storage lid. Red curved arrows indicate the first and fifth bows of the frame moving upwards. Another red arrow shows the lid being unlatched from the front.	The 1st and 5th bows move up. The storage lid is unlatched.
4	 The diagram shows the white frame with the blue storage lid. A red arrow points upwards and rearward from the lid, indicating its movement.	The storage lid moves up and rearward.
5	 The diagram shows the white frame with the blue storage lid. Red curved arrows indicate the soft top panels of the frame folding downwards.	The soft top folds.

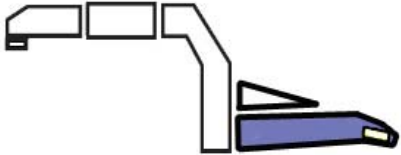
6		The soft top folds completely and stows in trunk.
7		The storage lid closes. The soft top is open.

Full open to full close:

	Status of top	Action
1		The storage lid is closed. The top is fully open.
2		The storage lid opens.



3	 <p>A diagram showing the first step of the soft top unfolding. A white frame is partially unfolded, with red curved arrows indicating the direction of movement. A blue rectangular piece, representing the soft top, is shown to the right.</p>	The soft top unfolds.
4	 <p>A diagram showing the second step of the soft top unfolding. The white frame is further unfolded, and the blue rectangular piece is now partially attached to the bottom of the frame.</p>	The top continues to unfold.
5	 <p>A diagram showing the third step of the soft top unfolding. The white frame is fully unfolded, and the blue rectangular piece is now fully attached to the bottom. A red arrow points to the blue piece, indicating it is closing.</p>	The storage lid closes.
6	 <p>A diagram showing the fourth step of the soft top unfolding. The white frame is fully unfolded, and the blue rectangular piece is now fully attached to the bottom. Red curved arrows indicate the 1st and 5th bows are being cinched down.</p>	The 1st and 5th bows are cinched down. The storage lid latches.

7		The front latch locks and the top is fully closed.
---	---	--

The convertible top can be opened or closed by using the roof control switch mounted on the center console. The request buttons, mounted on the door-handles, can be used only to open the convertible top when the I-key is in close proximity. The convertible top will not operate under the following conditions:

- Battery voltage falls below 10.5 volts
- The gear selector is in R
- Vehicle speed is greater than 3 mph (5 km/h)
- The tonneau board is not secured in position

The close procedure can only be initiated by the center console mounted switch. During the open or close sequences, the soft top operation light on the instrument panel illuminates.

During the roof close procedure, the roof control unit stops movement if it detects an obstruction due to excessive force needed to complete operation or if the switch is released. If the windows are in the up position or partially up, the roof control unit lowers them to clear the top assembly. During top open or close operation, the power windows become inoperative. The roof control unit monitors hydraulic oil temperature and cancels top operation if the hydraulic oil exceeds a predetermined temperature. After the hydraulic oil cools, top operation resumes. Oil overheating stores a Diagnostic Trouble Code (DTC) in control unit memory.



Storage Lid Assembly

The storage lid cover unlatches 6 - 8 seconds after the roof latch cylinder, mounted in the 1st bow, unlatches. The diagram on the following page shows the timing for each operation. After the 5th bow raises to clear the storage lid, the storage lid moves rearward and upward away from the passenger compartment. When closed, the rear of the storage lid is held in place with a latch, while the front of the storage lid is held in place with guides and a pair of strikers.

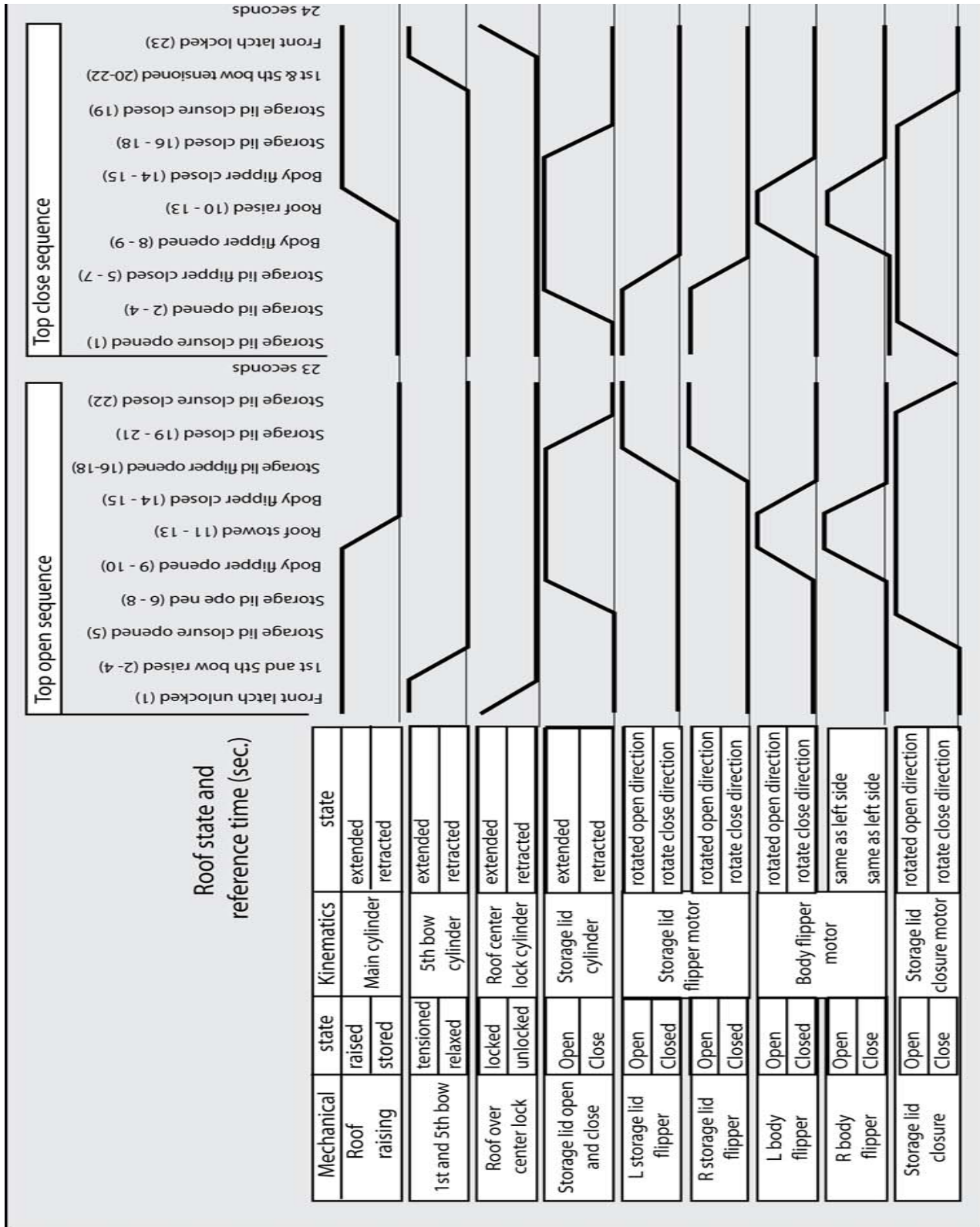


Storage Lid Latch



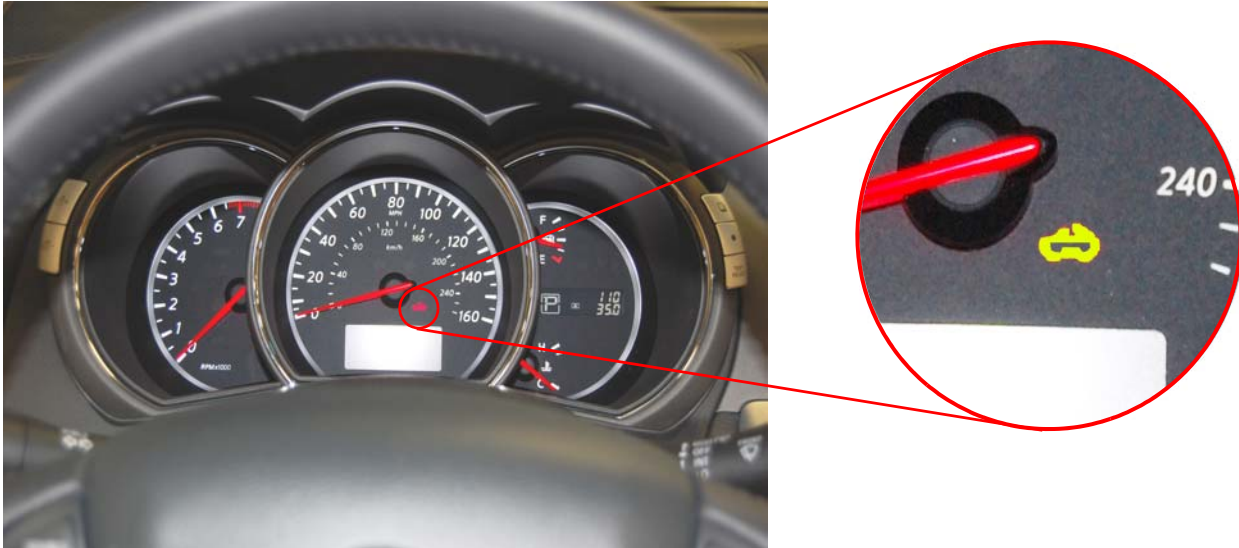
Storage Lid Striker

The roof control unit is mounted to the hydraulic pump assembly in the cargo area. The roof control unit operates four electric motors (two flipper motors, one storage lid motor, and one hydraulic pump motor) while monitoring seven Hall-effect switches (one mounted in each hydraulic cylinder) and various other inputs during operation. The image on the following page shows the correlation between mechanical movement, kinematic movement, hydraulic cylinder movement, and time.





During operation, the top indicator light, located in the instrument panel, illuminates. If the roof control module detects a fault, the soft top warning light flashes. This may be accompanied by an audible alert. See Convertible Top Diagnosis for more information.



Hall-effect Switches

A Hall-effect switch is a digital switch that changes state in a magnetic field. Hall-effect switches are switched on or off based on the presence or polarity of a magnetic field. A Hall-effect switch can be used to determine the speed of a rotating assembly or as a proximity switch.

The Murano convertible top system utilizes seven Hall-effect switches, one mounted on each hydraulic cylinder. These switches provide an on or off signal, depending on the position of the piston inside of the hydraulic cylinder. There is one hydraulic cylinder mounted on bow 1. There are two hydraulic cylinders acting on the storage lid, bow 5, and the roof drive cylinders respectively. Each pair of cylinders has a pair of Hall-effect sensors, one mounted on each cylinder at each end of the pistons travel. This is how the computer determines the position of the soft top.





Convertible Top Diagnosis

In the event of an electrical failure, all fuses and relays should be checked first. If there is a failure in one of the Hall-effect switches, a DTC will be set. The hydraulic fluid is designed for the life of the vehicle and is not servicable. If a hydraulic leak is suspected, perform a thorough visual inspection. Pay close attention to all connection points. Listen for any unusual noises from the hydraulic pump assembly. If there is a leak in the hydraulic system, the hydraulic system must be replaced as an assembly, including all seven cylinders, the lines and the pump assembly. If the roof control unit detects a battery voltage of 10.5 volts or below, it will not allow the roof to raise or lower. Either start the vehicle or connect a battery charger.

The technician can view the operational status of the various switches and sensors in the system as well as monitor components of the convertible top system during operation using CONSULT-III plus. In the event of a mechanical failure, the indicator light and/or the soft top chime indicates a possible problem and resolution. Refer to the charts below.

The tonneau board in the trunk separates cargo placed in the trunk from the convertible top when open. The left tonneau board receiver has a switch installed to determine the position of the tonneau board. When retracting the tonneau board for additional trunk storage, the convertible top becomes inoperative.

Convertible top indicator light status:

Status of roof		Operation stops when soft top is:		Operation
		Full open/full closed	Midway position	
Operation condition (normal)		Off	On	On
Out of operation condition	Trunk lid is open	Off	On	On
	Shift lever is in R	Off	Blinks	Blinks
	Ambient temp. below 32°F	Off	Blinks	Blinks
	Speed exceeds 5 km/h	Off	Blinks	Blinks
	Ignition switch is OFF	Off	Off	Off
	Any switch in the system	On	On	On
	Power window function	Off	On	On



Malfunction	Battery voltage low	On	On	On
	Pump temperature high	On	On	On
	Roof control unit	On	On	On
	Any sensor in the system	On	On	On
	Pump operation	On	On	On
	CAN communication	On	On	On
	Tonneau board switch	Off	Off	Off
	Any switch in the system	On	On	On



Convertible top chime status:

Operation/ Condition	Chime sounds	Cause	Action
Normal <ul style="list-style-type: none"> ▪ Roof open/close switch is active ▪ Operation is complete 	Sounds once		—
Release roof switch	Sounds twice	Roof state is not in end position (open/close)	Operate roof system to end position
Roof system does not operate		Gear selector is in R	Shift selector in P or N
		Trunk lid is not closed	Close trunk lid
		Storage lid is not closed	Close storage lid
		Requested operation is not possible (close request while top is closed, open request while top is open)	—
		Does not sound	Tonneau board is not in place
Tonneau board switch/wiring is defective	Replace/repair defective part		
The vehicle is in motion	Sounds once, long chime	Roof state is not in end position (open/close)	Fully open or close roof
Open operation by door request switch	No sound		—



CONSULT-III Plus Function

The CONSULT-III plus can be used to diagnose the soft top system by displaying DTCs and the values of the sensors and switches in the system, as well as by actuating the devices used in the system. The CONSULT-III plus performs the following functions via CAN communication with the soft top control unit.

Diagnosis mode		Function Description
ECU Identification		The soft top control unit part number is displayed
Self Diagnostic Result		Displays the diagnosis results judged by the RCU
	Freeze Frame Data	The RCU records the vehicle condition at the time when the DTC is detected and is displayed.
Data Monitor		The RCU input/output signals are displayed
Active Test		The signals used to activate each device are supplied from the RCU
CAN Diagnostic Support Monitor		Monitors the reception status of the CAN communication from the RCU

Self-Diagnosis

The RCU is equipped with a self-diagnosis feature to aid a technician in diagnosing a failure of a component of the top system. To access this capability:

- With the CONSULT-III plus connected, turn the ignition switch ON and wait for at least 2 seconds.
- Select “Self Diagnostic Result” mode of “CONVERTIBLE ROOF” using CONSULT-III plus.
- Check DTC.

Refer to “Trouble Diagnosis Flow Chart” if a DTC is detected. Refer to “Intermittent Incident” if there are no DTCs present.



Diagnostic Scenario

Description

The soft top does not operate using the roof open/close switch.

Diagnostic Procedure

1. Check the trunk room lamp signal using CONSULT-III plus.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. Check the back-up lamp signal using CONSULT-III plus.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CHECK ROOF OPEN/CLOSE SWITCH

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

4. REPLACE THE SOFT TOP CONTROL UNIT

Is the inspection result normal?

YES >> End inspection.

NO >> Check intermittent incident.



Description

The roof warning lamp does not illuminate when the soft top operates.

1. Check the roof warning lamp signal using CONSULT-III plus.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. Replace the RCU.

Is the inspection result normal?

YES >> End inspection.

NO >> Check intermittent incident.

Manual Top Closing

If the convertible top fails in the open position, the top must be closed manually. This procedure requires two technicians.

Caution:

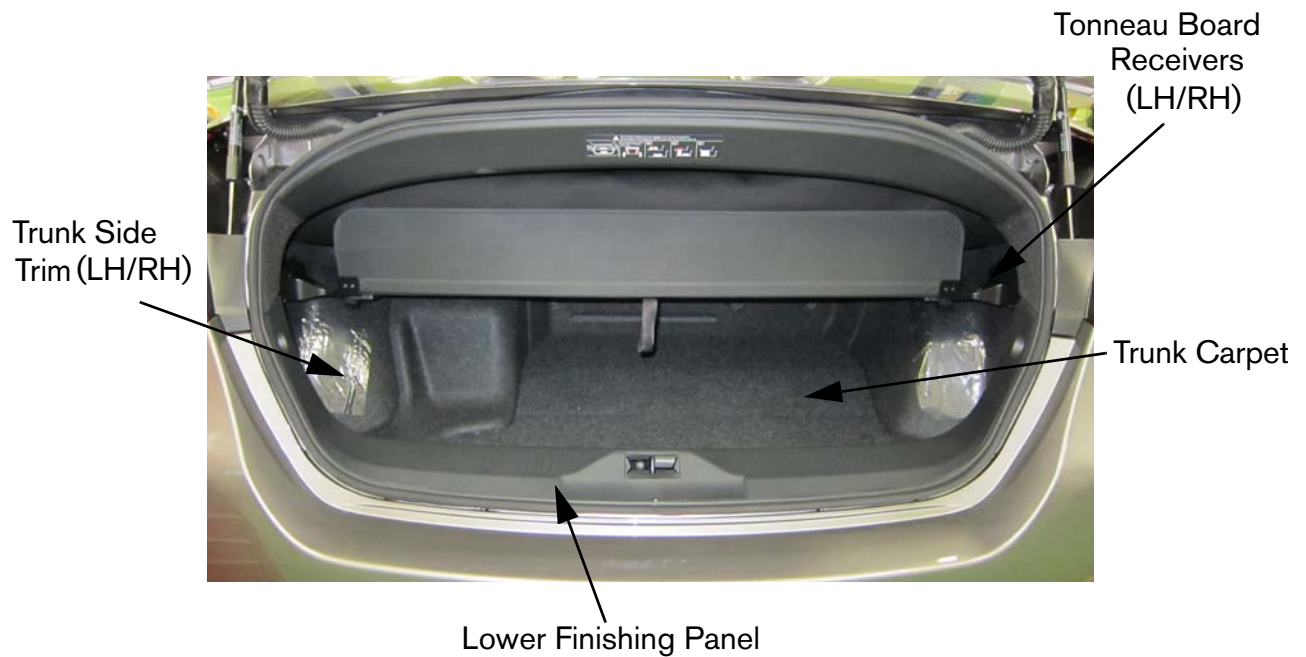
After manually closing the top, the vehicle is not weather-proof as the 5th bow will not be cinched down, as shown below. Store the vehicle inside and do not drive the vehicle at high speeds.



1. Unlock the trunk electronically or manually.
 - The key is directional, refer to the photo.



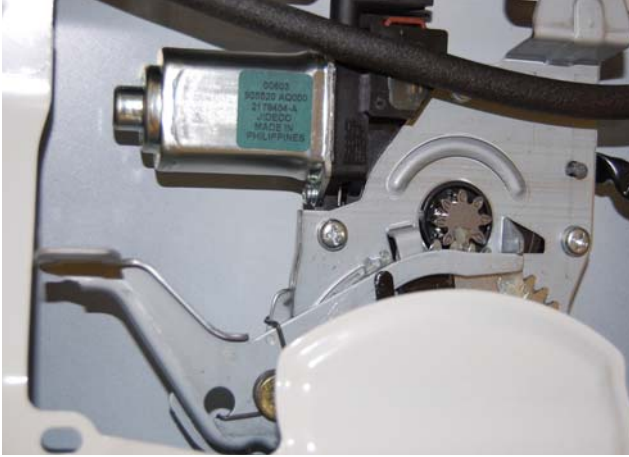
2. Remove the following trunk trim components.





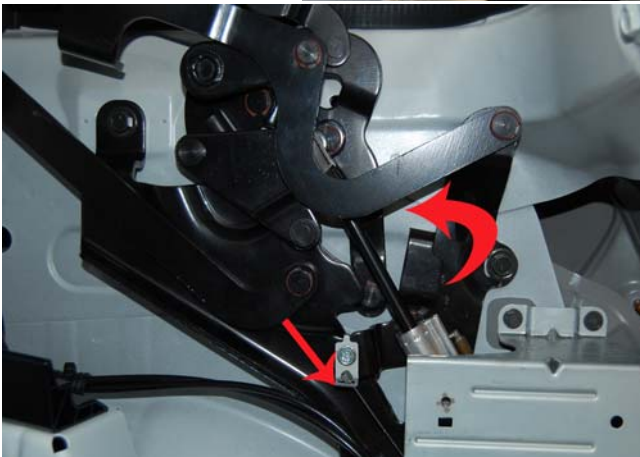
3. Release the rear of the storage lid.

- Push the lever toward the front of the vehicle.
- Insert a foam block or other semi-rigid material to hold the lever in place.

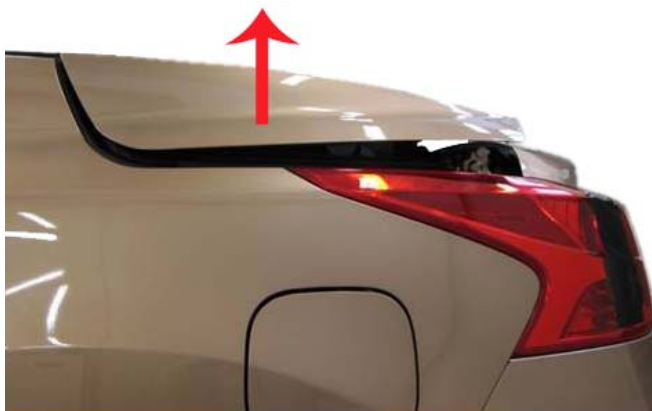


4. Release the storage lid front strikers.

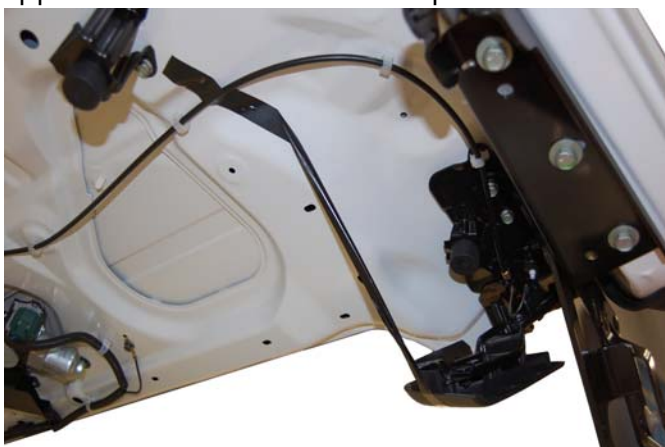
- Insert a screwdriver through the cable loop. The plastic loop is just to hold the cable in place.



5. Using two technicians, pull the storage lid up and rearward.



6. Fold the storage lid flippers and secure them with tape.



7. Fold the body flippers and secure them with tape.





8. Using two people, unfold the convertible top until it is in the rest position shown in the following photos.



Midway Position

9. Close the storage lid, making sure the rear latch catches.

- Remove the tape from the storage lid flippers before closing the storage lid.



10. If necessary, use a prybar and pry the linkage forward to capture the striker.



11. Manually push bow 1 and bow 5 down into position. This should be done at the same time.



12. After removing the trim plug in bow 1, insert a 5.5 mm Allen wrench and manually lock the header latches by rotating the wrench 1/4 turn clockwise.





At this time, the convertible top is closed and secured. The vehicle should be stored indoors and not be driven at high speeds, doing so could allow wind, water, and exhaust gases to enter the vehicle. The convertible top cannot be opened manually.

Convertible Top Adjustments

Caution:

Before manually operating each cylinder of the hydraulic system, turn the ignition switch OFF or disconnect the negative battery cable, then wait at least 4 minutes. This allows time for the hydraulic system to depressurize.

Environmental Issues

NOTE: If wind noise and/or water leaks are present, the service manual should be consulted for detailed repair information.

The most likely point for a water leak is at the weatherstrip joints at each segment junction as well as above the front windows, as indicated below.



The front and rear windows can be adjusted to resolve wind or water intrusion issues using the cam bolt on the bottom of the window regulator. Use a thin plastic card to check for a slight drag between the top of the window and the weatherstrip.

Storage Lid Adjustment

1. Operate the top until it is in the position depicted below.



NOTE: Do not loosen the storage lid mounting bolts completely, there should be slight drag on the storage lid.

2. Loosen the storage lid mounting bolts.
3. Use the soft top switch to close the storage lid.
4. Adjust the clearance of the storage lid at the specific points shown in the photo below.



5. After adjustment, tighten the storage lid mounting bolts to the specified torque value.



Soft top adjustment

1. Remove the trunk side trim (LH/RH).
2. The mechanism base plate must be in the proper position on the locating pins before adjustment.



- Open the soft top.



- Put clay in position so the striker locating pin will make contact.



- Manually operate the soft top to the rest position. Manually push on bow 1 so that the locating pins touch the clay pads.

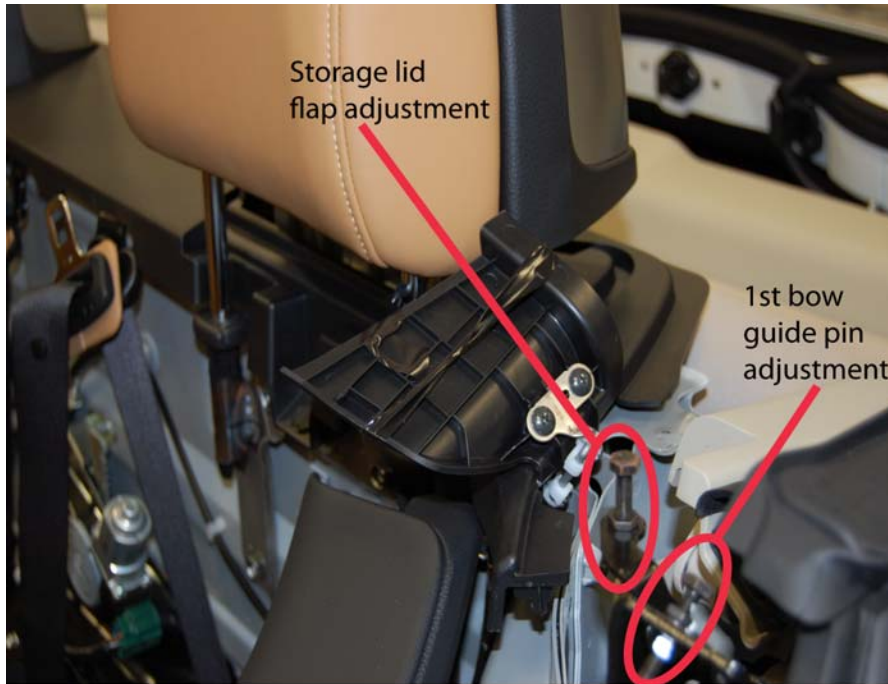


- Open the soft top to the partially open position.





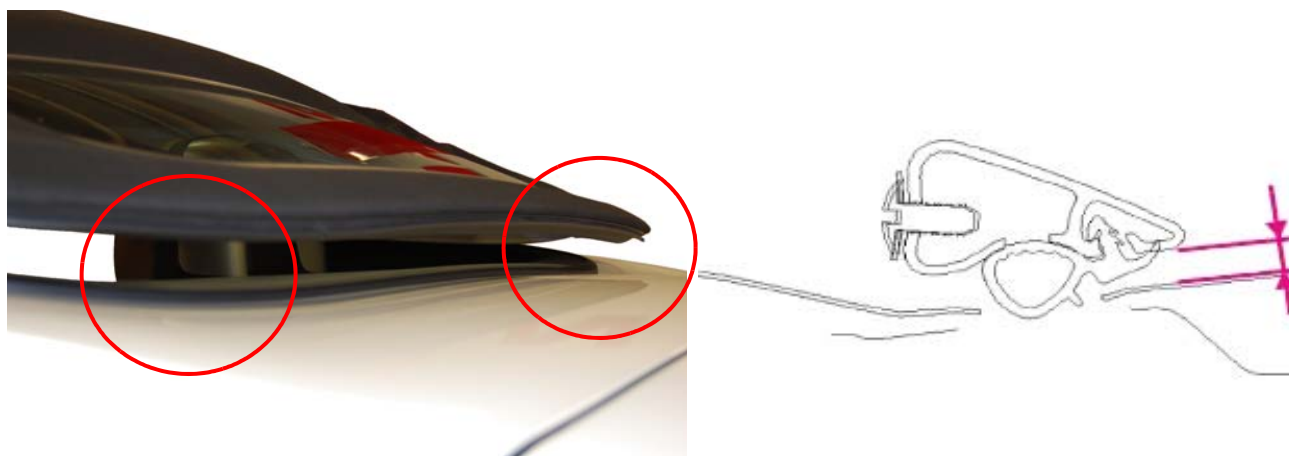
- Turn the adjustment bolt so that the locating pin comes +/- 0.079 in. (2.0 mm) from the center of clay pad.
 - Turn the adjustment bolt counter-clockwise to move the locating pin rearward.
 - Turn the adjustment bolt clockwise to move the locating pin forward.



3. Adjust the 5th bow.

- Close the soft top.
- With the top closed perform a visual inspection and identify any noticeable issues with the fit of the soft top to the vehicle. Pay attention to the following areas:
 - Top to windshield clearance
 - Top to storage lid
 - Top fit at the 5th bow on the right side
 - Top fit at the 5th bow on the left side
- Measure the clearance at both the left and right rear outer edges of the top. This gap should be between 0.071 to 0.335 inches (1.8 to 8.5 mm).

NOTE: The 5th bow is shown not closed for clarity. This measurement is performed with the top in the fully closed position.



- Open the top to the partial opened position as shown below.



Caution:

Turning the adjuster more than specified, or in the wrong direction, may damage the vehicle.

- Loosen both lock nuts and rotate the adjuster to bring the gap within specification.
 - Shorten the adjusting screw for a smaller 5th bow gap.
 - Lengthen the adjusting screw for a larger 5th bow gap.



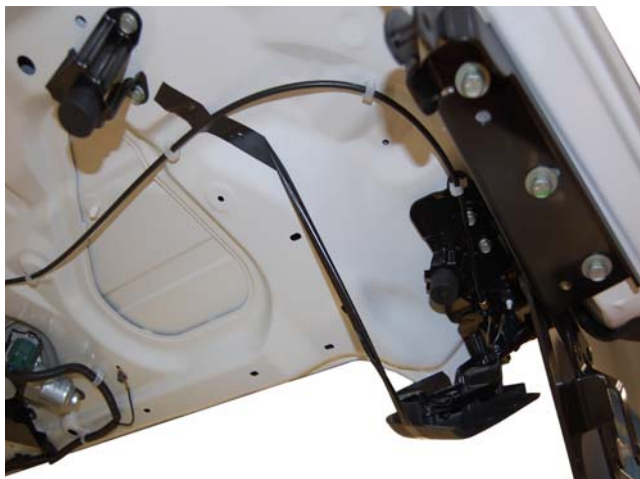
- Close the top and measure the clearances again and confirm that they are within tolerance.

Fabric Removal

NOTE: To remove the convertible top fabric, start with the top in the partially open position.



1. To avoid damaging the storage lid and body flaps, secure them in the positions shown below using tape.



Storage Lid Flippers



Body Flippers

2. Remove the seven screws and the front retainer.



3. Remove the front rail weatherstrip (LH/RH).





4. Remove the four screws and the front rail weatherstrip retainers (LH/RH).



5. Remove the tension cable (LH/RH).



6. Remove the cloth strap (LH/RH).



7. Remove the rear rail weatherstrip.





NOTE: The bows are not interchangeable. Be sure to mark bow 2 and bow 3 so they are installed in the proper locations.

8. Remove the retainer pins for bow 2 and bow 3. Then remove bow 2 and bow 3.



9. Remove the nuts that hold the rear window.



10. Remove the rear side retainer.



11. Remove the retainer pin.





12. Remove the cables (LH/RH).



13. Remove the top fabric.





Convertible Top Removal

1. Remove the rear seat back side support (LH/RH).
2. Remove the rear parcel shelf finisher.
3. Remove the rear wheel finisher (LH/RH).
4. Operate the soft top to the position shown below.



5. Disconnect the negative battery cable.

CAUTION:

Avoid applying sharp bends, twists, or excessive pulling force to the hydraulic hoses.

NOTE: Be sure to note the location of the clips and hose routing before removal.

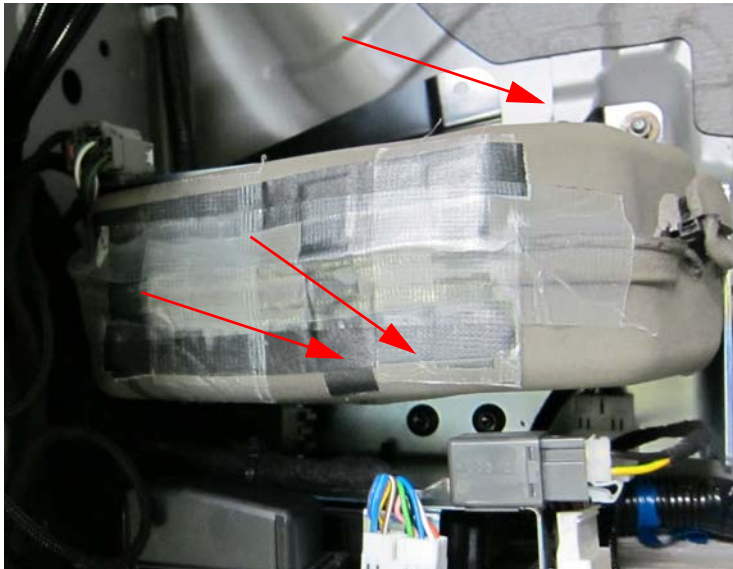
6. Remove the hydraulic hoses.



7. Disconnect the RCU harness connectors.



8. Remove the pump mounting nuts.



9. Disconnect the storage lid drive cylinder from the storage lid assembly.



CAUTION:

Do not remove the convertible top mounting bracket from the vehicle body.

10. Remove the convertible top mounting bolts (LH/RH).



Mounting Bolts



Mounting Bracket

- Take care to protect the body during the removal process.
- Avoid applying sharp bends, twists, or excessive pulling force to the hydraulic hoses.

CAUTION:

The convertible top assembly is very heavy. At least three technicians are required to remove the assembly.



11. Remove the convertible soft top assembly.

- After removal, place the soft top on a stand as shown below.

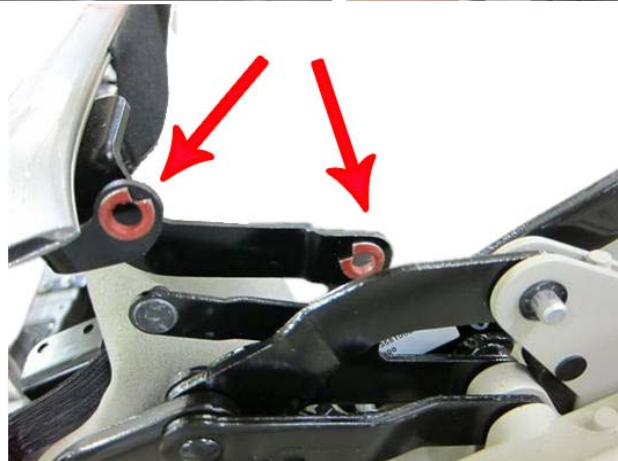
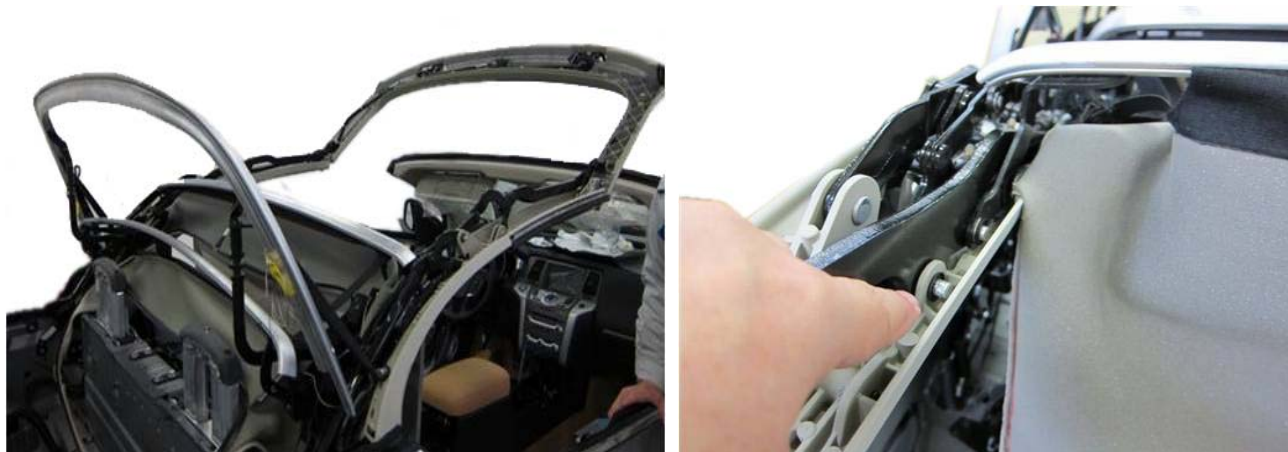


Headliner removal

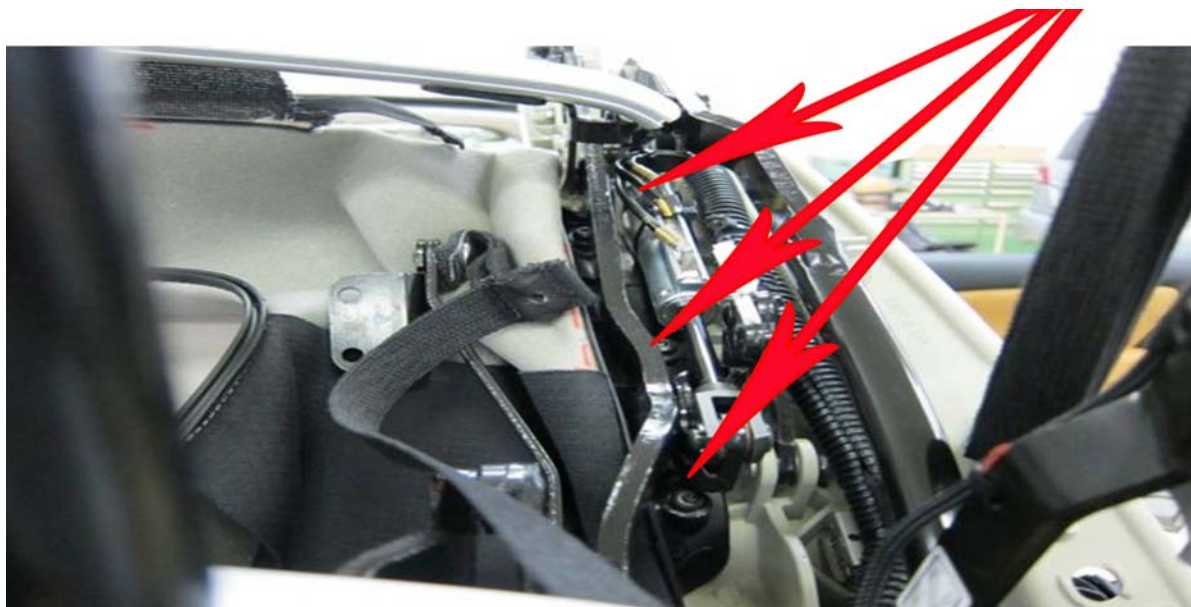
1. Remove the screws that fasten the leading edge of the headliner.



2. Remove bow 3.5 and bow 4.



3. Remove the three retaining screws.



4. Remove the headliner.



Precautions

To avoid damage to the rear window and the convertible top fabric, the rear window defogger should never be activated when the convertible top is open. Never operate the convertible top in temperatures below 32°F (0°C). The convertible top material will not stretch and fold correctly in cold temperatures, resulting in damage to the top.

Keep the convertible top and rear windows clean at all times. Debris on the fabric can scratch the glass. Avoid high-pressure car washes.

CONSULT-III Plus

The CONSULT-III plus is used to monitor and diagnose the roof system. The CONSULT-III plus can be used:

- To find DCTs

The screenshot shows the CONSULT-III Plus diagnostic software interface. At the top, it displays 'CONSULT-III plus Ver. 04.11.00', VIN: JN8AZ1FY4BW000018, Vehicle: MURANO Cross Cabriolet Z51 2011, and Country: U.S.A. The main menu includes 'Diagnosis (All Systems)', 'Select Vehicle', 'Confirm Vehicle', and 'Diagnosis (All Systems)'. Below this, there are tabs for 'All DTC', 'CAN Diag', 'CAN DIAG SUPPORT MNR', and 'SRT & P-DTC'. The 'All DTC' tab is active, showing a list of systems and their DTC status:

System	DTC Status
CONVERTIBLE ROOF	PAST
ENGINE	NO DTC
ABS	NO DTC
METER/M&A	NO DTC
BCM	NO DTC
AIR BAG	NO DTC
TRANSMISSION	NO DTC

The 'CONVERTIBLE ROOF' system is selected, and the 'Detailed Information' window shows the following DTC:

DTC ID	Description	Status	FFD	DTC Explana
B177B	ROOF STATE INCORRECT	PAST	FFD	DTC Explana

At the bottom right, there are buttons for 'Print for Customer', 'Print', and 'Start'. Navigation arrows and page indicators (1/2 and 1/1) are also visible.



- To monitor data pertaining to the switches, motors, and sensors in the system

CONSULT-III plus Ver.04.11.00 VIN:JN8AZ1FY4BW000018 Vehicle : MURANO Cross Cabriolet Z51 2011 Country : U.S.A.

Back Home Print Screen Screen Capture Measurement Mode Recorded Data Help 12.5V VI MI

Data Monitor Line Graph Single List

VERTIBLE ROOF	ROOF SW (OPEN)	Off	
VERTIBLE ROOF	ROOF SW (CLOSE)	Off	
VERTIBLE ROOF	SHIFT R SIGNAL	Off	
VERTIBLE ROOF	TRUNK LID OP/CL STATUS	CLOSE	
VERTIBLE ROOF	IGN ON SIG(BCM)	On	
VERTIBLE ROOF	Tonneau closure emergency lever flag	Off	
VERTIBLE ROOF	STORAGE LID DOOR SWITCH	On	
VERTIBLE ROOF	S/LID LOCK OPEN SW	On	
VERTIBLE ROOF	S/LID LOCK CLOSE SW	On	
VERTIBLE ROOF	TRUNK OPEN REQUEST SIG	Off	
VERTIBLE ROOF	TONNEAU BOARD SWITCH	On	

Explanation Trigger Info. Record



- To perform component tests and more using ACTIVE TEST

CONSULT-III plus Ver.04.11.00 VIN:JN8AZ1FY4BW000018 Vehicle : MURANO Cross Cabriolet Z51 2011 Country : U.S.A.

Back Home Print Screen Screen Capture Measurement Mode Recorded Data Help 12.7V VI MI

Diagnosis (All Systems) Select Vehicle Confirm Vehicle Diagnosis (All Systems) CONVERTIBLE ROOF

Self Diagnostic Result Data Monitor Active Test ECU identification

Test Item	MONITOR ITEM
ROOF LATCHED LH/RH	Monitor Menu No valid item.
STORAGE LID	No valid item.
SOFT TOP SYSTEM	
ROOF SYSTEM	
5TH BOW SYSTEM	
HYDRAULIC PRESSURE RELEASE	
TRUNK OPENER	
ROOF STATE OUTPUT(AUDIO)	

1 / 2 1 / 1 Start

Tire Repair Service Kit

The tire repair service kit is located under the trunk carpet and consists of the following items:

1. Tire sealant bottle
2. Speed restriction sticker
3. Air compressor



NOTE: For complete tire repair kit instructions, refer to the vehicle owner's manual.

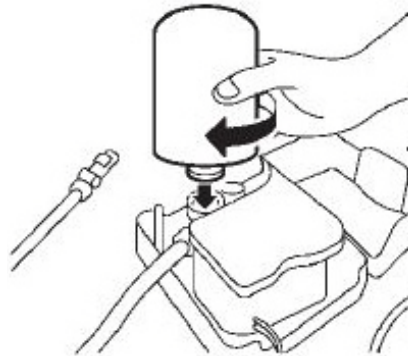
In the event of a flat tire:

1. Remove the protective cap from the air compressor.

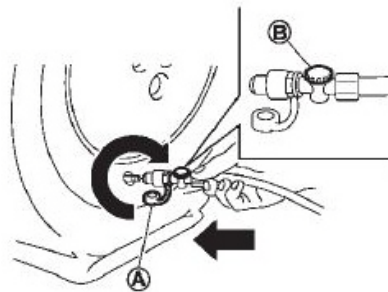




2. After removing the cap, screw the sealant bottle onto the air compressor. Leave the bottle seal intact. Screwing the bottle onto the air compressor will pierce the seal.

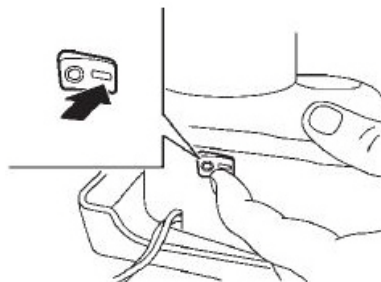


3. Remove the protective cap (A) from the hose and screw in onto the valve stem. Make sure the pressure release valve (B) is tightened. Make sure the air compressor is switched OFF (o).



NOTE: If the tire cannot be inflated to the specified pressure, the tire should be inflated to a minimum of 26 psi (180 kPa).

4. Turn the compressor to the ON (-) position and inflate the tire to specification. Turn the air compressor off briefly to check the tire pressure.



Caution:



Do not put the speed restriction label on the steering wheel pad, the speedometer or the warning light locations.

5. Affix the speed restriction sticker in a location where the driver can see it while driving.

New technologies

Audio System

The new Nissan Murano® CrossCabriolet™ is equipped with a Bose® 8-speaker audio system. The audio system adjusts the audio settings depending on the position of the soft top, and has speed-sensitive volume control. The RDS-equipped AM/FM head-unit is equipped with a CD player that is capable of reading MP3 and WMA files and has a standard iPod® interface. The CrossCabriolet is also equipped with the 9.3 GB Music Box® hard drive, XM® satellite radio with NavTraffic®, and an auxiliary audio/video input jack in the center console.





Heated Seats

The heated seat system consists of a heated seat switch, seat cushion heating elements, and seat back heating elements. The heated seat switches provides the on/off signal that supplies power to each heated seat element, and facilitates switching between the HI/LO modes.

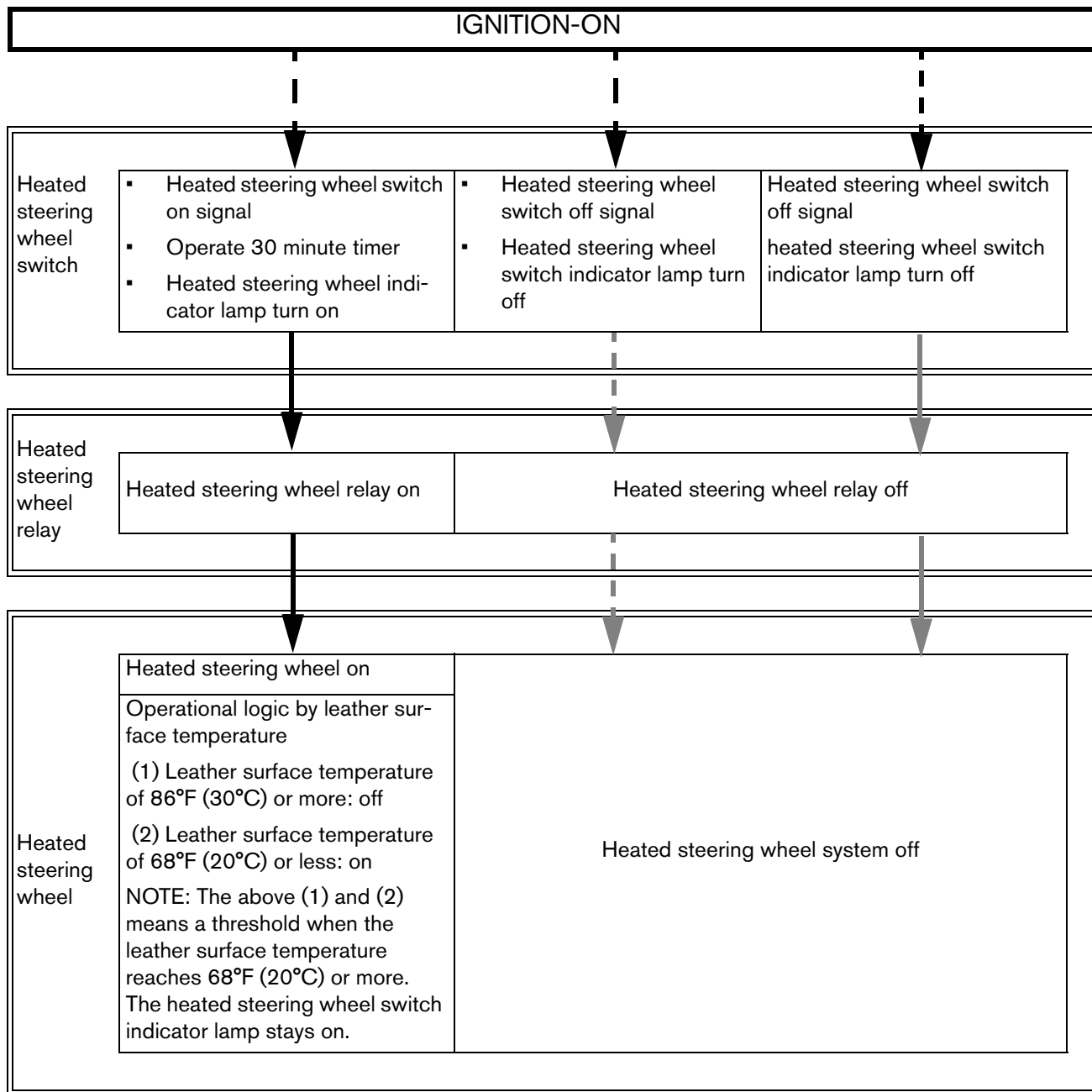


Heated Steering Wheel

The heated steering wheel is activated by the power supply from the heated steering wheel relay. Furthermore, the heated steering wheel incorporates a heating element and a thermostat to control heated steering wheel temperatures.

- Heating element: Heat is generated by the passage of an electric current
- Thermostat: Regulates the power supply to maintain a certain temperature

Refer to the diagram on the following page for system operation.



- ➤ : Ignition on signal
- ➤ : Steering wheel switch on operation
- - ➤ : Steering wheel switch off operation
- ➤ : 30 minute timer off operation



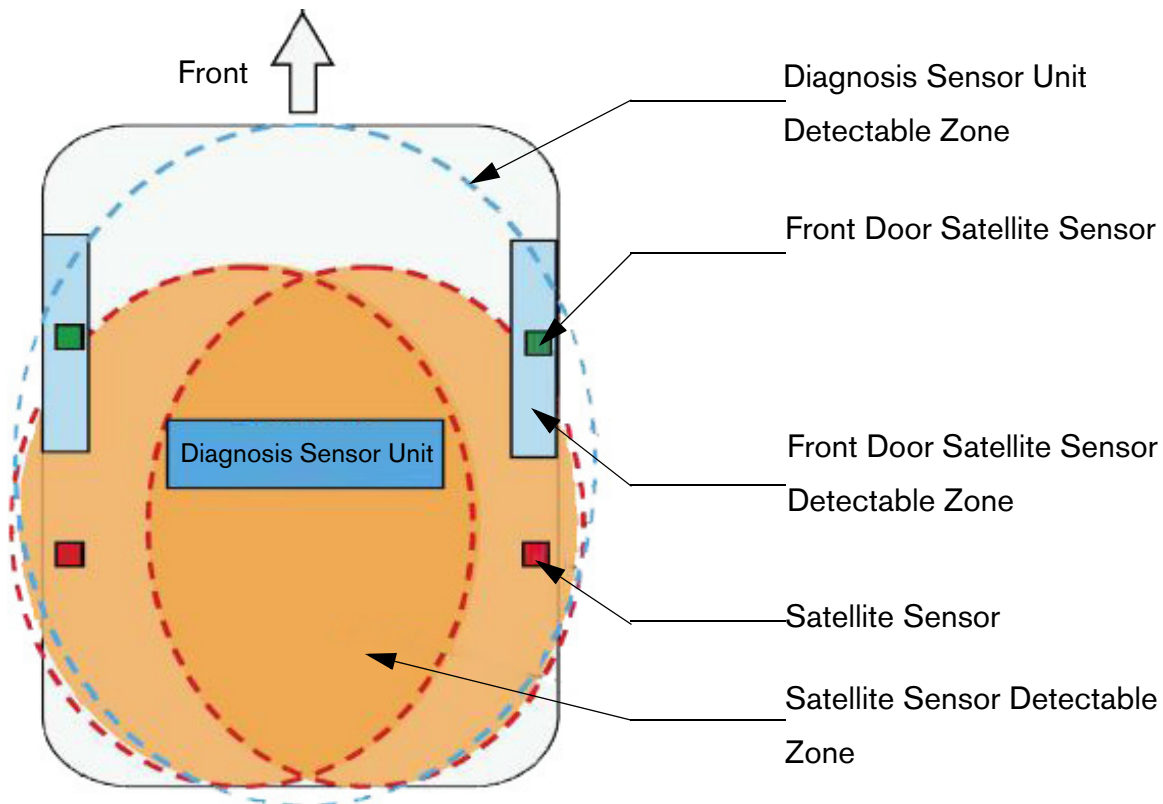
Murano CrossCabriolet Restraints

Advanced Air Bag System (AABS)

Standard safety equipment in the Murano CrossCabriolet includes:

- Advanced Air Bag System (AABS) with dual-stage supplemental front air bags
- Seat belt and occupant classification sensors
- Front seat-mounted side impact supplemental air bags
- Door mounted side curtain air bag for front and rear-seat outboard occupant head protection
- Three-point Automatic Locking Retractor (ALR) / Emergency Locking Retractor (ELR) seat belts (driver's seat ELR only)
- Front seat belts with pretensioners and load limiters
- Zone body construction with front and rear crumple zones
- LATCH system

The following illustration identifies the sensors used in detecting a collision to the Murano CrossCabriolet.



Occupant Classification System (OCS)

- Advance Air Bag System features the Occupant Classification System, which utilizes an improved film mat type sensor.
- AABS helps minimize the risk to infants, children, and other occupants from injuries and deaths caused by air bags.
- Rear facing child seats should never be installed in the front passenger seat.
- OCS is located inside the passenger seat cushion near the hip position.

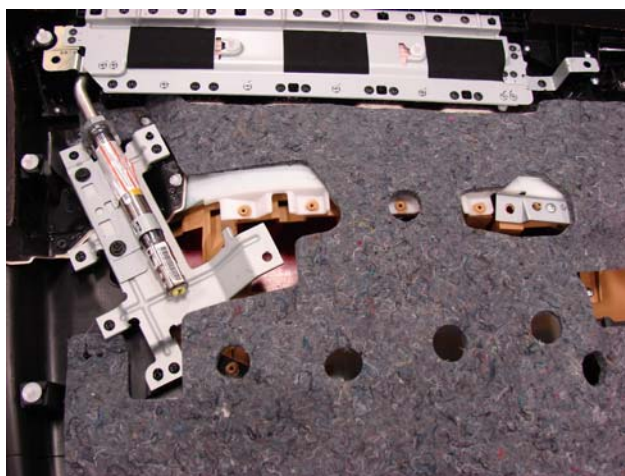
The Occupant Classification System has the following functions:

- Suppresses the deployment of the passenger air bag when the passenger seat is empty, or when occupied by a child and/or a child-seat
- Turns on the front passenger air bag OFF indicator when the passenger seat is occupied by a child-seat and child
- Indicates the malfunction portion via the number of blinks from the air bag warning lamp in the diagnosis mode
- Indicates the malfunctioning item via CONSULT
- Benefits of the OCS include more precise occupant detection, reduced weight and ability to meet new U.S. regulations (FMVSS208)
- Reference the ESM for diagnosing the passenger air bag

NOTE: The sensor/seat bladder assembly should not be separated; replace the complete seat cushion assembly if required.

Door-mounted Curtain Side Air Bag and Seat-Mounted Side Air Bag

- Front and rear passenger protection provided by door-mounted curtain air bags
- Protects head of front and rear passenger
- Abdomen and pelvis positions protected by extended seat-mounted side air bags for front passengers only





Front door satellite sensors detect a change in air pressure within the door during a side impact, enabling faster deployment of the side and curtain air bags. The B-pillar satellite sensors detect impact.



Disassembly Procedure

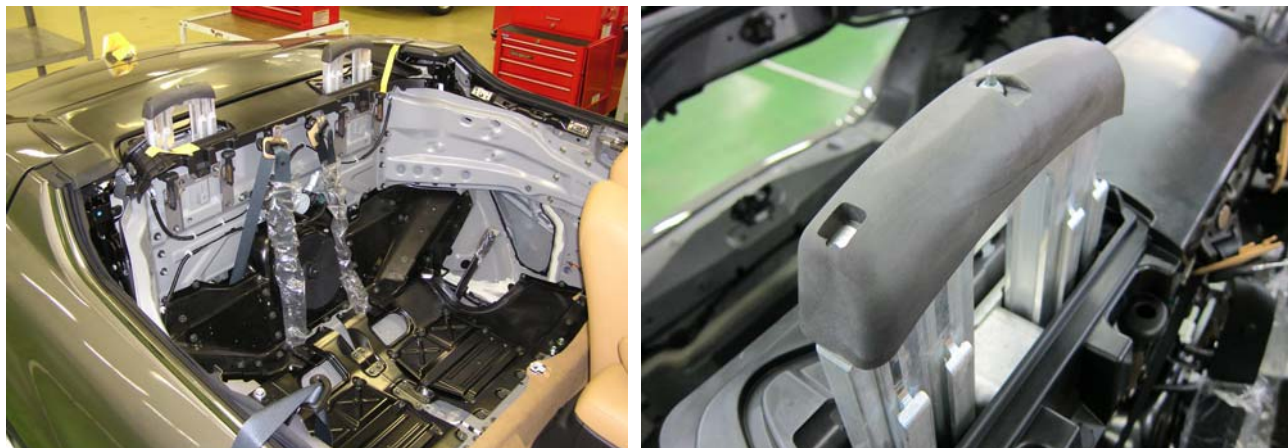
- Turn the ignition switch OFF and remove battery terminals.
- Reference the ESM for the procedure used in removing the door panel with side curtain air bag.

NOTE: Remove the door trim gently to avoid damaging the side curtain air bag harness connector.

Dual Rear Pop-Up Roll Bars

- Movable bars are located behind the rear seat
- If the air bag rollover sensor detects the lateral acceleration of the vehicle, the pop-up bars deploy, whether the convertible top is in the raised or lowered position

When the pop-up bars deploy, the convertible top is inoperative to avoid interference with the pop-up roll bars.



Deployed Position

- Pop-up bars are normally hidden inside the headrest garnish behind the rear seat back.
- The seat belt pre-tensioner, door-mounted curtain air bag, and pop-up roll bar are activated by the air bag diagnosis sensor unit signal at the time of rollover.
- When the diagnosis sensor unit detects acceleration when the vehicle rolls over in a lateral direction, the pop-up roll bar activates protecting the vehicle passengers.

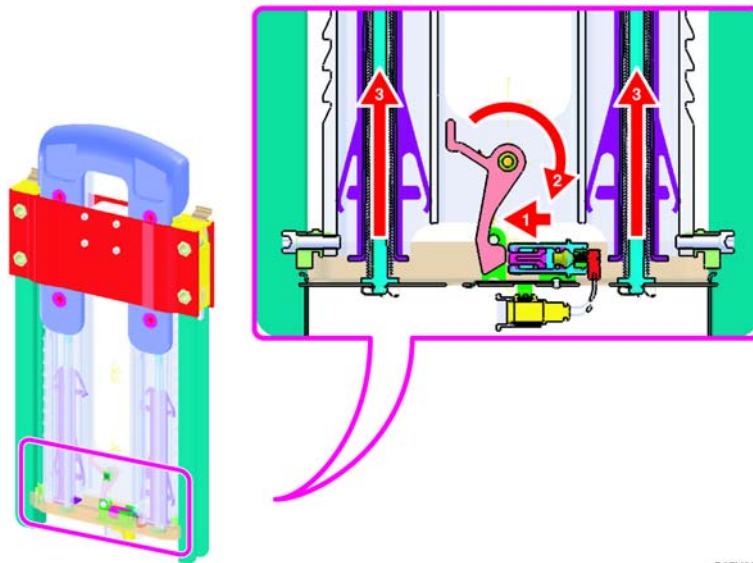
Caution:

Before servicing the pop-up roll bar, turn the ignition switch OFF, disconnect the negative battery terminal, and wait at least 3-minutes or more to discharge the backup capacitor. Never use an unspecified meter or tester.



Pop-Up Mechanism

- Squib fires pyrotechnic device when ignited
- Lever rotates
- Roll bar pops up by spring force



G37H008