

SECTION MA
MAINTENANCE

A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

CONTENTS

<p>SERVICE INFORMATION 3</p> <p>PRECAUTIONS 3</p> <p style="padding-left: 20px;">Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"3</p> <p>PREPARATION 4</p> <p style="padding-left: 20px;">Special Service Tool4</p> <p style="padding-left: 20px;">Commercial Service Tool4</p> <p>GENERAL MAINTENANCE 6</p> <p style="padding-left: 20px;">Explanation of General Maintenance6</p> <p>PERIODIC MAINTENANCE 8</p> <p style="padding-left: 20px;">Introduction of Periodic Maintenance8</p> <p style="padding-left: 20px;">Schedule 18</p> <p style="padding-left: 20px;">Schedule 210</p> <p>RECOMMENDED FLUIDS AND LUBRICANTS12</p> <p style="padding-left: 20px;">Fluids and Lubricants12</p> <p style="padding-left: 20px;">Engine Oil Recommendation12</p> <p>ENGINE MAINTENANCE14</p> <p>DRIVE BELT14</p> <p style="padding-left: 20px;">DRIVE BELT : Checking Drive Belts14</p> <p>ENGINE COOLANT14</p> <p style="padding-left: 20px;">ENGINE COOLANT : System Inspection14</p> <p style="padding-left: 20px;">ENGINE COOLANT : Changing Engine Coolant16</p> <p>FUEL LINES19</p> <p style="padding-left: 20px;">FUEL LINES : Checking Fuel Line19</p> <p>AIR CLEANER FILTER19</p> <p style="padding-left: 20px;">AIR CLEANER FILTER : Removal and Installation20</p> <p>ENGINE OIL21</p> <p style="padding-left: 20px;">ENGINE OIL : Inspection21</p> <p style="padding-left: 20px;">ENGINE OIL : Changing Engine Oil22</p>	<p>OIL FILTER23</p> <p style="padding-left: 20px;">OIL FILTER : Removal and Installation23</p> <p>SPARK PLUG (PLATINUM-TIPPED TYPE)24</p> <p style="padding-left: 20px;">SPARK PLUG (PLATINUM-TIPPED TYPE) : Removal and Installation24</p> <p>EVAP VAPOR LINES25</p> <p style="padding-left: 20px;">EVAP VAPOR LINES : Checking EVAP Vapor Line26</p> <p>CHASSIS AND BODY MAINTENANCE27</p> <p>IN-CABIN MICROFILTER27</p> <p style="padding-left: 20px;">IN-CABIN MICROFILTER : Removal and Installation27</p> <p>EXHAUST SYSTEM27</p> <p style="padding-left: 20px;">EXHAUST SYSTEM : Checking Exhaust System...27</p> <p>A/T FLUID27</p> <p style="padding-left: 20px;">A/T FLUID : Changing A/T Fluid28</p> <p style="padding-left: 20px;">A/T FLUID : Checking A/T Fluid28</p> <p>WHEELS29</p> <p style="padding-left: 20px;">WHEELS : PAX Run Flat Tires and Wheels29</p> <p style="padding-left: 20px;">WHEELS : Conventional Tire and Wheel29</p> <p>BRAKE FLUID LEVEL AND LEAKS31</p> <p style="padding-left: 20px;">BRAKE FLUID LEVEL AND LEAKS : Checking Brake Fluid Level and Leaks31</p> <p>BRAKE LINES AND CABLES31</p> <p style="padding-left: 20px;">BRAKE LINES AND CABLES : Checking Brake Line and Cables32</p> <p>DISC BRAKE32</p> <p style="padding-left: 20px;">DISC BRAKE : Checking Disc Brake32</p> <p>STEERING GEAR AND LINKAGE32</p> <p style="padding-left: 20px;">STEERING GEAR AND LINKAGE : Checking Steering Gear and Linkage33</p> <p>POWER STEERING FLUID AND LINES33</p>
--	---

POWER STEERING FLUID AND LINES : Check- ing Power Steering Fluid and Line	33	SEAT BELT, BUCKLES, RETRACTORS, AN- CHORS AND ADJUSTERS	35
AXLE AND SUSPENSION PARTS	33	SEAT BELT, BUCKLES, RETRACTORS, AN- CHORS AND ADJUSTERS : Checking Seat Belts, Buckles, Retractors, Anchors and Adjusters	35
AXLE AND SUSPENSION PARTS : Axle and Suspension Parts	34	LOCKS, HINGES AND HOOD LATCH	35
DRIVE SHAFT	34	LOCKS, HINGES AND HOOD LATCH : Lubricat- ing Locks, Hinges and Hood Latch	36
DRIVE SHAFT : Drive Shaft	35		

PRECAUTIONS

< SERVICE INFORMATION >

SERVICE INFORMATION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000004278421

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

PREPARATION

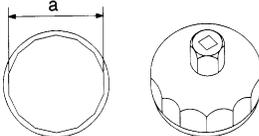
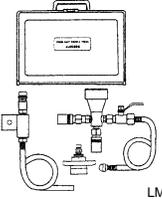
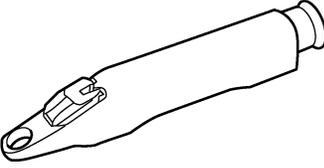
< SERVICE INFORMATION >

PREPARATION

Special Service Tool

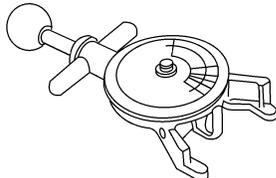
INFOID:000000004278422

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
KV10115801 (J-38956) Oil filter cap wrench  NT375	Removing oil filter a: 64.3 mm (2.531 in)
KV991J0070 (J-45695) Coolant refill tool  LMA053	For refilling engine cooling system
KV991J0010 (J-23688) Engine coolant refractometer  WBIA0539E	Checking concentration of ethylene glycol in engine coolant

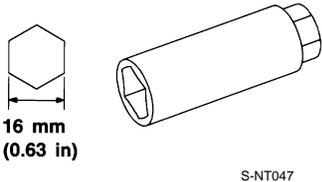
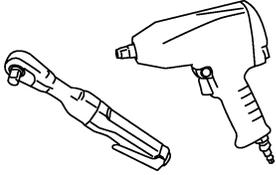
Commercial Service Tool

INFOID:000000004278423

(Kent-Moore No.) Tool name	Description
(BT-3373-F) Belt tension gauge  AMA126	Checking drive belt tension

PREPARATION

< SERVICE INFORMATION >

(Kent-Moore No.) Tool name	Description	
Spark plug wrench  <p>16 mm (0.63 in)</p> <p>S-NT047</p>	Removing and installing spark plugs	A B C
Power Tool  <p>PBIC0190E</p>	Loosening bolts and nuts	D E F

MA

M

N

O

P

GENERAL MAINTENANCE

< SERVICE INFORMATION >

GENERAL MAINTENANCE

Explanation of General Maintenance

INFOID:000000004278424

General maintenance includes those items which should be checked during the normal day-to-day operation of the vehicle. They are essential if the vehicle is to continue operating properly. The owners can perform checks and inspections themselves or have their NISSAN dealers do them.

OUTSIDE THE VEHICLE

The maintenance items listed here should be performed from time to time, unless otherwise specified.

Item		Reference page
Tires	Check the pressure with a gauge often and always prior to long distance trips. Adjust the pressure in all tires, including the spare, to the specified pressure. Check carefully for damage, cuts or excessive wear.	WT-29, "Tire"
Wheel nuts	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	WT-6
Windshield	Clean the windshield on a regular basis. Check windshield at least every six months for cracks or other damage. Repair as necessary.	GW-11
Tire rotation	Tires should be rotated every 12,000 km (7,500 miles).	WT-6
Tire Pressure Monitoring System (TPMS) transmitter components	Replace the TPMS transmitter grommet seal, valve core and cap when the tires are replaced due to wear or age.	WT-27
Wheel alignment and balance	If the vehicle pulls to either side while driving on a straight and level road, or if you detect uneven or abnormal tire wear, there may be a need for wheel alignment. If the steering wheel or seat vibrates at normal highway speeds, wheel balancing may be needed.	FSU-7, "Front Wheel Alignment" and MA-29
Windshield wiper blades	Check for cracks or wear if they do not wipe properly. Replace as necessary.	—
Doors and engine hood	Check that all doors and the engine hood operate smoothly as well as the back hatch. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	MA-36
Lamps	Make sure that the head lamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check head lamp aim. Clean the eclampsia on a regular basis.	LT-21, "Aiming Adjustment" (US), LT-33, "Aiming Adjustment" (Canada)

INSIDE THE VEHICLE

The maintenance items listed here should be checked on a regular basis, such as when performing periodic maintenance, cleaning the vehicle, etc.

Item		Reference page
Warning lamps and chimes	Make sure that all warning lamps and chimes are operating properly.	—
Windshield wiper and washer	Check that the wipers and washer operate properly and that the wipers do not streak.	—
Windshield defroster	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
Steering wheel	Check that it has the specified play. Be sure to check for changes in the steering condition, such as excessive play, hard steering or strange noises.	PS-7
Seats	Check seat position controls such as seat adjusters, seat back recliner, etc. to make sure they operate smoothly and that all latches lock securely in every position. Check that the head restraints move up and down smoothly and that the locks (if equipped) hold securely in all latched positions. Check that the latches lock securely for folding-down rear seat backs.	—
Seat belts	Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly, and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	MA-35

GENERAL MAINTENANCE

< SERVICE INFORMATION >

Item		Reference page	
Accelerator pedal	Check the pedal for smooth operation and make sure the pedal does not catch or require uneven effort. Keep the floor mats away from the pedal.	—	A
Brakes	Check that the brake does not pull the vehicle to one side when applied.	BR-25	B
Brake pedal and booster	Check the pedal for smooth operation and make sure it has the proper distance under it when depressed fully. Check the brake booster function. Be sure to keep the floor mats away from the pedal.	BR-5 and BR-21	C
Parking brake	Check that the pedal has the proper travel and make sure that the vehicle is held securely on a fairly steep hill with only the parking brake applied.	PB-4 , " On-Vehicle Service "	D
Automatic transaxle "Park" mechanism	Check that the lock release button on the selector lever operates properly and smoothly. On a fairly steep hill check that the vehicle is held securely with the selector lever in the "P" position without applying any brakes.	—	E

UNDER THE HOOD AND VEHICLE

The maintenance items listed here should be checked periodically (e.g. each time you check the engine oil or refuel).

Item		Reference page	
Windshield washer fluid	Check that there is adequate fluid in the tank.	—	F
Engine coolant level	Check the coolant level when the engine is cold.	MA-16	G
Radiator and hoses	Check the front of the radiator and clean off any dirt, insects, leaves, etc., that may have accumulated. Make sure the hoses have no cracks, deformation, deterioration or loose connections.	—	H
Brake fluid level	Make sure that the brake fluid level is between the "MAX" and "MIN" lines on the reservoir.	MA-31	I
Battery	Check the fluid level in each cell. It should be between the "MAX" and "MIN" lines. Vehicles operated in high temperatures or under severe conditions require frequent checks of the battery fluid level.	SC-4	J
Engine drive belts	Make sure that no belt is frayed, worn, cracked or oily.	MA-14	K
Engine oil level	Check the level on the dipstick after parking the vehicle on a level spot and turning off the engine.	MA-22	MA
Power steering fluid level and lines	Check the level on the dipstick with the engine off. Check the lines for improper attachment, leaks, cracks, etc.	MA-33	M
Automatic transaxle fluid level	Check the level on the dipstick after putting the selector lever in "P" with the engine idling.	MA-28	N
Exhaust system	Make sure there are no loose supports, cracks or holes. If the sound of the exhaust seems unusual or there is a smell of exhaust fumes, immediately locate the trouble and correct it.	MA-27	O
Underbody	The underbody is frequently exposed to corrosive substances such as those used on icy roads or to control dust. It is very important to remove these substances, otherwise rust will form on the floor pan, frame, fuel lines and around the exhaust system. At the end of winter, the underbody should be thoroughly flushed with plain water, being careful to clean those areas where mud and dirt can easily accumulate.	—	P
Fluid leaks	Check under the vehicle for fuel, oil, water or other fluid leaks after the vehicle has been parked for a while. Water dripping from the air conditioner after use is normal. If you should notice any leaks or gasoline fumes are evident, check for the cause and correct it immediately.	—	

PERIODIC MAINTENANCE

< SERVICE INFORMATION >

PERIODIC MAINTENANCE

Introduction of Periodic Maintenance

INFOID:000000004278425

Two different maintenance schedules are provided, and should be used, depending upon the conditions in which the vehicle is mainly operated. After 60,000 miles (96,000 km) or 48 months, continue the periodic maintenance at the same mileage/time intervals.

Schedule 1	Follow Periodic Maintenance Schedule 1 if the driving habits frequently include one or more of the following driving conditions: <ul style="list-style-type: none"> • Repeated short trips of less than 5 miles (8 km). • Repeated short trips of less than 10 miles (16 km) with outside temperatures remaining below freezing. • Operating in hot weather in stop-and-go “rush hour” traffic. • Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use. • Driving in dusty conditions. • Driving on rough, muddy, or salt spread roads. • Towing a trailer, using a camper or a car-top carrier. 	Emission Control System Maintenance	MA-8
		Chassis and Body Maintenance	MA-8
Schedule 2	Follow Periodic Maintenance Schedule 2 if none of driving conditions shown in Schedule 1 apply to the driving habits.	Emission Control System Maintenance	MA-10
		Chassis and Body Maintenance	MA-10

Schedule 1

INFOID:000000004278426

EMISSION CONTROL SYSTEM MAINTENANCE

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. []: At the mileage intervals only

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6)	7.50 (12)	11.25 (18)	15 (24)	18.75 (30)	22.5 (36)	26.25 (42)	30 (48)	
Drive belts	NOTE (1)									MA-14
Air cleaner filter	NOTE (2)								[R]	MA-20
EVAP vapor lines									I*	MA-26
Fuel lines									I*	MA-19
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)									MA-14
Engine oil		R	R	R	R	R	R	R	R	MA-22
Engine oil filter (use genuine NISSAN engine oil filter or equivalent.)		R	R	R	R	R	R	R	R	MA-23
Spark plugs (Platinum-tipped type)		Replace every 105,000 miles (169,000 km).								MA-24
Intake & exhaust valve clearance*	NOTE (5)									EM-85

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54)	37.5 (60)	41.25 (66)	45 (72)	48.75 (78)	52.5 (84)	56.25 (90)	60 (96)	
Drive belts	NOTE (1)								I*	MA-14
Air cleaner filter	NOTE (2)								[R]	MA-20
EVAP vapor lines									I*	MA-26
Fuel lines									I*	MA-19

PERIODIC MAINTENANCE

< SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)								R*	MA-14
Engine oil		R	R	R	R	R	R	R	R	MA-22
Engine oil filter (use genuine NISSAN engine oil filter or equivalent.)		R	R	R	R	R	R	R	R	MA-23
Spark plugs (Platinum-tipped type)		Replace every 105,000 miles (169,000 km).								MA-24
Intake & exhaust valve clearance*	NOTE (5)									EM-85

(1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months. Replace the drive belts if found damaged.

(2) If operating mainly in dusty conditions, more frequent maintenance may be required.

(3) Maintenance-free item. For service procedures, go to the FL section.

(4) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.

(5) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

* Maintenance items and intervals with "*" are recommended by NISSAN for reliable vehicle operation. The owner need not perform such maintenance in order to maintain the emission warranty or manufacturer recall liability. Other maintenance items and intervals are required.

CHASSIS AND BODY MAINTENANCE

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.50 (12) 6	11.25 (18) 9	15 (24) 12	18.75 (30) 15	22.5 (36) 18	26.25 (42) 21	30 (48) 24	
Brake lines & cables					I				I	MA-32
Brake pads & rotors			I		I		I		I	MA-32
Automatic transaxle fluid	NOTE (1)				I				I	MA-28
Steering gear & linkage, axle & suspension parts			I		I		I		I	MA-33, MA-34
Tire rotation	NOTE (2)									MA-29
Exhaust system			I		I		I		I	MA-27
Front drive shaft boot			I		I		I		I	MA-35
In-cabin microfilter					R				R	MA-27

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Brake lines & cables					I				I	MA-32
Brake pads & rotors			I		I		I		I	MA-32
Automatic transaxle fluid	NOTE (1)				I				I	MA-28
Steering gear & linkage, axle & suspension parts			I		I		I		I	MA-33, MA-34
Tire rotation	NOTE (2)									MA-29
Exhaust system			I		I		I		I	MA-27

PERIODIC MAINTENANCE

< SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000	33.75	37.5	41.25	45	48.75	52.5	56.25	60	
	(km x 1,000)	(54)	(60)	(66)	(72)	(78)	(84)	(90)	(96)	
	Months	27	30	33	36	39	42	45	48	
Front drive shaft boots			I		I		I		I	MA-35
In-cabin microfilter					R				R	MA-27

(1) If towing a trailer, using a camper or a car-top carrier, or driving on rough or muddy roads, change (not just inspect) oil at every 30,000 miles (48,000 km) or 24 months. For 5 A/T models, using automatic transmission fluid other than Genuine NISSAN Matic Fluid K ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the NISSAN new vehicle limited warranty.

(2) Refer to [MA-6](#).

Schedule 2

INFOID:000000004278427

EMISSION CONTROL SYSTEM MAINTENANCE

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. []: At the mileage intervals only

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000	7.5	15	22.5	30	37.5	45	52.5	60	
	(km x 1,000)	(12)	(24)	(36)	(48)	(60)	(72)	(84)	(96)	
	Months	6	12	18	24	30	36	42	48	
Drive belts	NOTE (1)								I*	MA-14
Air cleaner filter					[R]				[R]	MA-20
EVAP vapor lines					I*				I*	MA-26
Fuel lines					I*				I*	MA-19
Fuel filter	NOTE (2)									—
Engine coolant	NOTE (3)								R*	MA-14
Engine oil		R	R	R	R	R	R	R	R	MA-22
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent.)		R	R	R	R	R	R	R	R	MA-23
Spark plugs (Platinum-tipped type)		Replace every 105,000 miles (169,000 km).								MA-24
Intake & exhaust valve clearance*	NOTE (4)									EM-85

(1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months. Replace the drive belts if found damaged.

(2) Maintenance-free item. For service procedures, go to FL section.

(3) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.

(4) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

* Maintenance items and intervals with "*" are recommended by NISSAN for reliable vehicle operation. The owner need not perform such maintenance in order to maintain the emission warranty or manufacturer recall liability. Other maintenance items and intervals are required.

CHASSIS AND BODY MAINTENANCE

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000	7.5	15	22.5	30	37.5	45	52.5	60	
	(km x 1,000)	(12)	(24)	(36)	(48)	(60)	(72)	(84)	(96)	
	Months	6	12	18	24	30	36	42	48	
Brake lines & cables			I		I		I		I	MA-32
Brake pads & rotors			I		I		I		I	MA-32
Automatic transaxle fluid	NOTE (1)		I		I		I		I	MA-28

PERIODIC MAINTENANCE

< SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		7.5 (12)	15 (24)	22.5 (36)	30 (48)	37.5 (60)	45 (72)	52.5 (84)	60 (96)	
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	6	12	18	24	30	36	42	48	
Steering gear & linkage, axle & suspension parts					I				I	MA-33 , MA-34
Tire rotation	NOTE (2)									MA-29
Exhaust system					I				I	MA-27
Front drive shaft boots			I		I		I		I	MA-35
In-cabin microfilter			R		R		R		R	MA-27

(1) For 5 A/T models, using automatic transmission fluid other than Genuine NISSAN Matic Fluid K ATF will cause deterioration in drivability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the NISSAN new vehicle limited warranty.

(2) Refer to [MA-6](#).

A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

RECOMMENDED FLUIDS AND LUBRICANTS

< SERVICE INFORMATION >

RECOMMENDED FLUIDS AND LUBRICANTS

Fluids and Lubricants

INFOID:000000004278428

Description		Capacity (Approximate)			Recommended Fluids/Lubricants
		Metric	US measure	Imp measure	
Fuel		75.6 ℓ	20 gal	16 5/8 gal	Unleaded gasoline with an octane rating of at least 87 AKI (RON 91) *1
Engine oil Drain and refill	With oil filter change	4.2 ℓ	4 1/2 qt	3 3/4 qt	<ul style="list-style-type: none"> • Engine oil with API Certification Mark *2 • Viscosity SAE 5W-30
	Without oil filter change	3.9 ℓ	4 1/8 qt	3 3/8 qt	
Dry engine (engine overhaul)		5.0 ℓ	5 1/4 qt	4 3/8 qt	
Cooling system	With reservoir at "MAX" level	10.5 ℓ	11 1/8 qt	9 1/4 qt	Genuine NISSAN Long Life Anti-freeze Coolant or equivalent
Automatic transaxle fluid (ATF)		7.4 ℓ	7 7/8 qt	6 1/2 qt	Genuine NISSAN Matic K ATF *3
Power steering fluid (PSF)		1.0 ℓ	2 1/8 pt	1 3/4 pt	Genuine NISSAN PSF or equivalent *4
Brake fluid		—	—	—	Genuine NISSAN Super Heavy Duty Brake Fluid *5 or equivalent DOT 3 (US FMVSS No. 116)
Multi-purpose grease		—	—	—	NLGI No. 2 (lithium soap base)
Brake grease		—	—	—	PBC (Poly Butyl Cuprysil) grease or silicone-based grease or equivalent
Windshield washer fluid		4.5 ℓ	1 1/4 gal	1 gal	Genuine NISSAN Windshield Washer Concentrate Cleaner & Anti-freeze or equivalent
Air conditioning system refrigerant		900 ± 50 g	1.98 ± 0.11 lb	1.98 ± 0.11 lb	HFC-134a (R-134a) *6
Air conditioning system oil		220 m ℓ	7.44 fl oz	7.7 fl oz	NISSAN A/C System Oil Type S or equivalent *6

*1: Use unleaded regular gasoline with an octane rating of at least 87 AKI (Anti-Knock Index) number (Research octane number 91).

For improved vehicle performance, NISSAN recommends the use of unleaded premium gasoline with an octane rating of at least 91 AKI (Research octane number 96).

*2: For further details, refer to [MA-12, "Engine Oil Recommendation"](#).

*3: Using automatic transmission fluid other than Genuine NISSAN Matic K ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the NISSAN new vehicle limited warranty.

*4: DEXRON™ VI ATF or Canada NISSAN Automatic Transmission Fluid may also be used.

*5: Available in mainland U.S.A. through a NISSAN dealer.

*6: For further details, see "Air conditioner specification label".

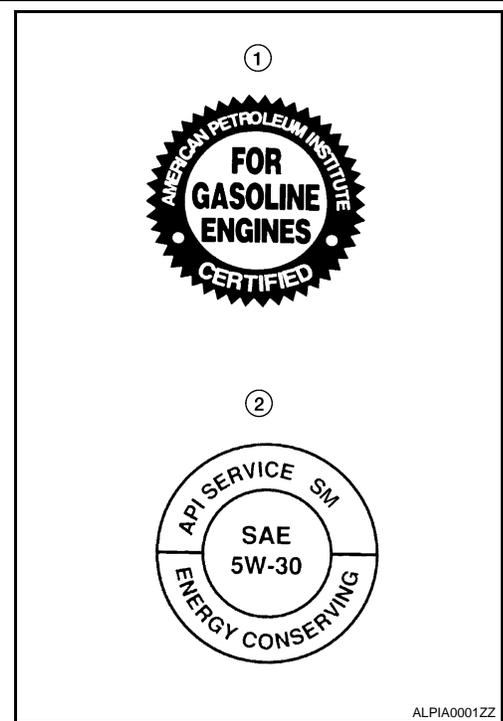
Engine Oil Recommendation

INFOID:000000004278429

RECOMMENDED FLUIDS AND LUBRICANTS

< SERVICE INFORMATION >

NISSAN recommends the use of an energy conserving oil in order to improve fuel economy. Select only engine oils that meet the American Petroleum Institute (API) certification and International Lubricant Standardization and Approval Committee (ILSAC) certification and SAE viscosity standard (2). These oils have the API certification mark (1) on the front of the container. Oils which do not have the specified quality label should not be used as they could cause engine damage.



ANTI-FREEZE COOLANT MIXTURE RATIO

The engine cooling system is filled at the factory with a high-quality, long life, year-round, anti-freeze coolant solution. The anti-freeze solution contains rust and corrosion inhibitors. Therefore, additional cooling system additives are not necessary.

For outside temperatures down to:		Anti-freeze coolant mixture ratio	
° C	° F	Genuine NISSAN Long Life Antifreeze coolant	Demineralized water or distilled water
- 35°	- 30°	50 %	50 %

CAUTION:

- When adding or replacing coolant, be sure to use only Genuine NISSAN Long Life Anti-freeze coolant or equivalent with the proper mixture ratio of 50% anti-freeze and 50% demineralized water or distilled water.
- Other types of coolant solutions may damage your cooling system.

A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

ENGINE MAINTENANCE

< SERVICE INFORMATION >

ENGINE MAINTENANCE

DRIVE BELT

DRIVE BELT : Checking Drive Belts

INFOID:000000004683863

WARNING:

Be sure to perform when the engine is not running.

1. Inspect belt for cracks, fraying, wear or oil adhesion. If necessary, replace with a new one.
2. Inspect drive belt deflections by applying 98 N (10 kg-f, 22 lb-f) on the belt midway between pulleys as shown.
3. Measure the belt tension using Tool at the locations as shown.

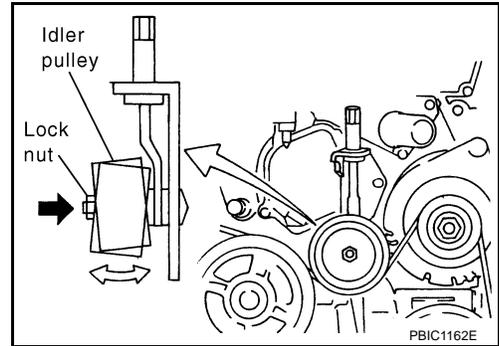
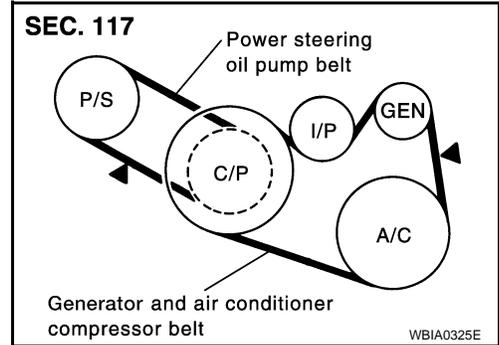
Tool number : BT-3373-F

NOTE:

- Inspect drive belt deflection or tension when engine is cold.
- Adjust if belt deflections exceed the limit or if belt tension is not within specifications.

CAUTION:

- **When checking belt deflection or tension immediately after installation, first adjust it to the specification value. Then, after turning the crankshaft two turns or more, readjust to the specified value to avoid variation in deflection between pulleys.**
- **Tighten idler pulley lock nut by hand and measure deflection or tension without looseness.**



Belt Deflection and Tension

	Deflection adjustment		Unit: mm (in)	Tension adjustment*		Unit: N (kg-f, lb-f)
	Used belt		New belt	Used belt		New belt
	Limit	After adjustment		Limit	After adjustment	
Generator and air conditioner compressor	7 (0.28)	4.2 - 4.6 (0.17 - 0.18)	3.7 - 4.1 (0.15 - 0.16)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.5 - 94.5, 188 - 208)
Power steering oil pump	11 (0.43)	7.3 - 8.0 (0.29 - 0.30)	6.5 - 7.2 (0.26 - 0.28)	196 (20, 44)	495 - 583 (50.5 - 59.5, 111 - 131)	603 - 691 (61.5 - 70.5, 135.6 - 155.4)
Applied pushing force	98 N (10 kg-f, 22 lb-f)			—		

*: If belt tension gauge cannot be installed at check points as shown, check drive belt tension at different location on the belt.

ENGINE COOLANT

ENGINE COOLANT : System Inspection

INFOID:000000004683864

WARNING:

- **Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure fluid escaping from the radiator.**
- **Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing down and turning it all the way.**

ENGINE MAINTENANCE

< SERVICE INFORMATION >

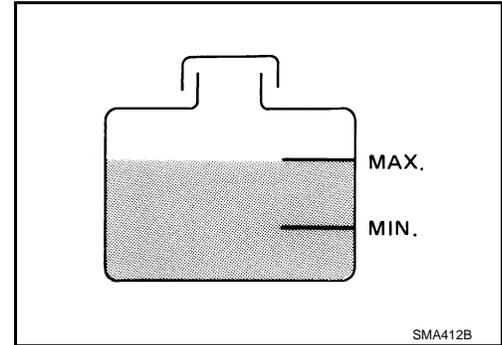
CHECKING COOLING SYSTEM HOSES

Check hoses for the following:

- Improper attachment
- Leaks
- Cracks
- Damage
- Loose connections
- Chafing
- Deterioration

CHECKING RESERVOIR LEVEL

- Check if the reservoir tank coolant level is within MIN to MAX range when the engine is cool.
- Adjust coolant level if it is too much or too little.



CHECKING COOLING SYSTEM FOR LEAKS

To check for leakage, apply pressure to the cooling system using suitable tool and Tool.

Tool number : EG17650301 (J-33984-A)

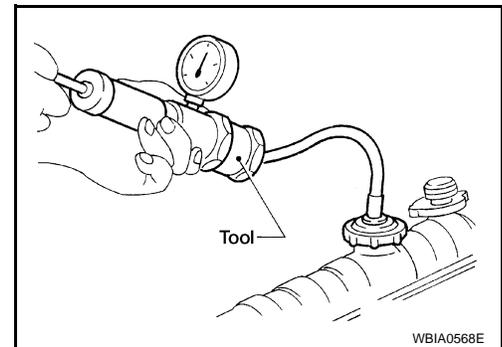
Testing pressure : 157 kPa (1.6 kg/cm², 23 psi)

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

Higher pressure than specified may cause radiator damage.



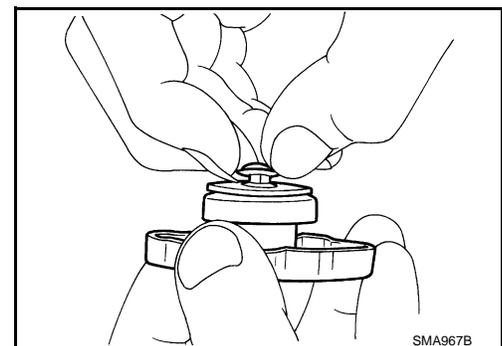
CHECKING RADIATOR CAP

1. Inspect the radiator cap.
 - Replace the cap if the metal plunger cannot be seen around the edge of the black rubber gasket.
 - Replace the cap if deposits of waxy residue or other foreign material are on the black rubber gasket or the metal retainer.

NOTE:

Thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.

2. Pull the negative-pressure valve to open it and check that it closes completely when released.
 - Check that there is no dirt or damage on the valve seat of the radiator cap negative-pressure valve.
 - Check that there are no abnormalities in the opening and closing conditions of the negative-pressure valve.



A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

ENGINE MAINTENANCE

< SERVICE INFORMATION >

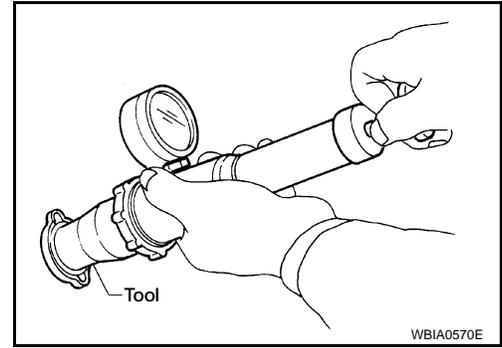
3. Check radiator cap relief pressure using suitable tool and Tool.

Tool number : EG17650301 (J-33984-A)

Standard: 78 – 98 kPa (0.8 – 1.0 kg/cm², 11 – 14 psi)

Limit: 59 kPa (0.6 kg/cm², 9 psi)

- When connecting the radiator cap to the tester, apply water or coolant to the cap seal surface.
- Replace the radiator cap if there is an abnormality in the negative-pressure valve, or if the open-valve pressure is outside of the standard values.



CHECKING RADIATOR

Check radiator for mud or clogging. If necessary, clean radiator as follows:

- Be careful not to bend or damage the radiator fins.
 - When radiator is cleaned without removal, remove all surrounding parts such as cooling fan shroud and horns. Then tape the harness and electrical connectors to prevent water from entering.
1. Apply water by hose to the back side of the radiator core, with the hose pointed vertically downward.
 2. Apply water again to all radiator core surfaces once per minute.
 3. Stop washing if any stains no longer flow out from the radiator.
 4. Blow air into the back side of radiator core, with the air hose pointed vertically downward.
 - Use compressed air lower than 490 kPa (5 kg/cm², 71 psi) and keep distance more than 30 cm (11.8 in).
 5. Blow air again into all the radiator core surfaces once per minute until no water sprays out.
 6. Check for leaks.

ENGINE COOLANT : Changing Engine Coolant

INFOID:000000004683865

WARNING:

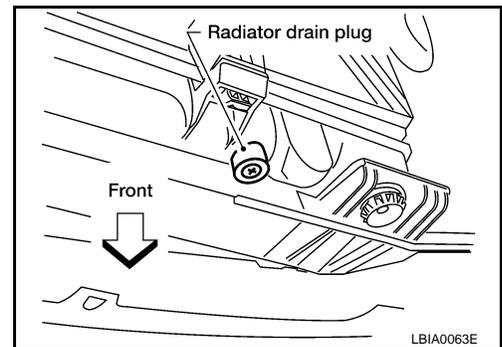
- **To avoid being scalded, never change the coolant when the engine is hot.**
- **Wrap a thick cloth around cap and carefully remove the cap. First, turn the cap a quarter of a turn to release built-up pressure. Then push down and turn the cap all the way to remove.**

DRAINING ENGINE COOLANT

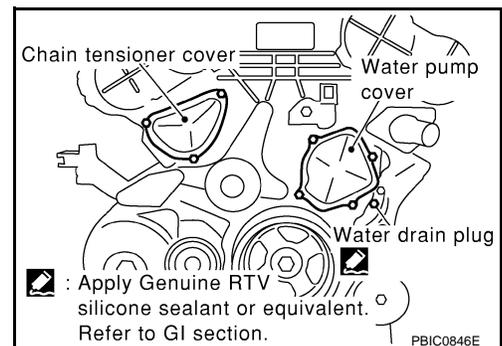
1. Remove engine undercover.
2. Open radiator drain plug at the bottom of radiator and remove the radiator filler cap. This is the only step required for a partial cooling system drain (radiator only).
3. For a complete cooling system drain, remove the reservoir tank and drain the coolant, and then clean the reservoir tank before installation.

CAUTION:

Do not allow coolant to spill on the drive belts.



4. When performing a complete cooling system drain (to remove the engine or for engine repair), remove the cylinder block front drain plug and the cylinder block RH and LH drain plugs.

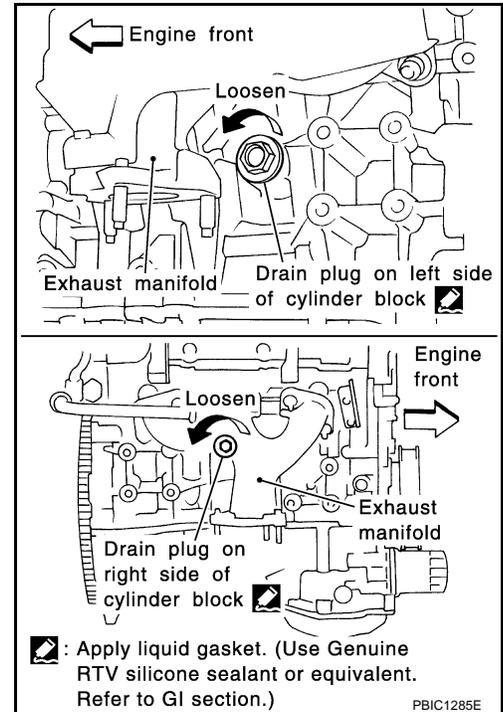


ENGINE MAINTENANCE

< SERVICE INFORMATION >

CAUTION:

If the vehicle is equipped with an engine block heater in place of the cylinder block LH drain plug, do not remove the engine block heater.



5. Check the drained coolant for contaminants such as rust, corrosion or discoloration.
 - If contaminated, flush the engine cooling system.

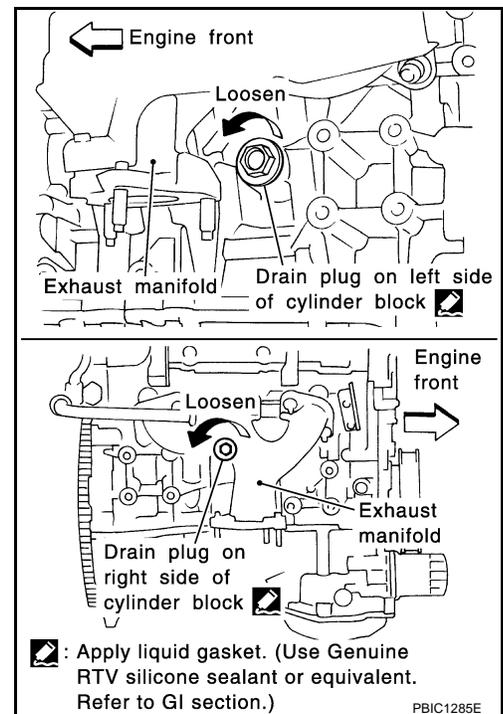
REFILLING ENGINE COOLANT

1. Install the radiator drain plug. If the cooling system was drained completely, install the reservoir tank and the cylinder block drain plugs and tighten to specification.

CAUTION:

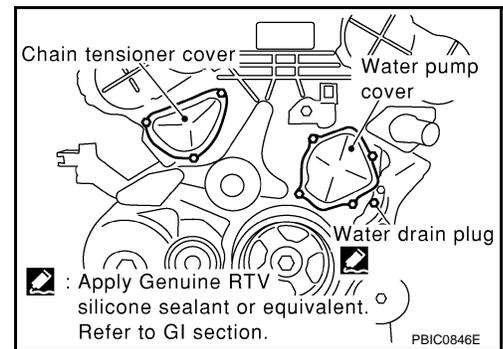
If the vehicle is equipped with an engine block heater in place of the cylinder block LH drain plug, do not remove the engine block heater.

- The radiator must be completely empty of coolant and water.
- Apply sealant to the threads of the cylinder block drain plugs. Use Genuine High Performance Thread Sealant or equivalent. Refer to [GI-42](#).



ENGINE MAINTENANCE

< SERVICE INFORMATION >



- Radiator drain plug : Refer to [CO-16](#)
- Cylinder block front drain plug : Refer to [EM-116](#)
- Cylinder block RH drain plug : Refer to [EM-116](#)
- Cylinder block LH drain plug : Refer to [EM-116](#)

2. If disconnected, reattach the upper radiator hose at the engine side.
3. Set the vehicle heater controls to the full HOT and heater ON position. Turn the vehicle ignition ON with the engine OFF as necessary to activate the heater mode.
4. Install the Tool by installing the radiator cap adapter onto the radiator neck opening. Then attach the gauge body assembly with the refill tube and the venturi assembly to the radiator cap adapter.

Tool number : KV991J0070 (J-45695)

5. Insert the refill hose into the coolant mixture container that is placed at floor level. Make sure the ball valve is in the closed position.
 - Use Specified engine coolant or equivalent.Refer to [MA-12, "Engine Oil Recommendation"](#).

Engine coolant capacity (with reservoir tank) : Refer to [MA-12, "Fluids and Lubricants"](#).

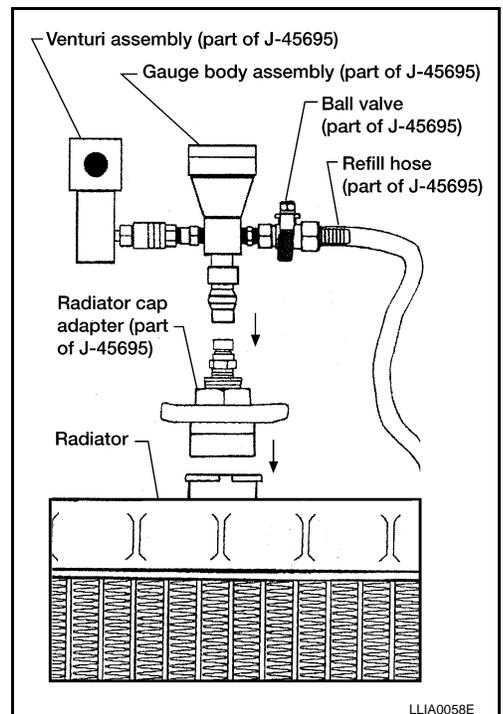
6. Install an air hose to the venturi assembly, the air pressure must be within specification.

Compressed air supply pressure : 5.7 - 8.5 kPa (5.6 - 8.4 kg/cm², 80 - 120 psi)

CAUTION:

The compressed air supply must be equipped with an air dryer.

7. The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve on the refill hose slightly. Coolant will be visible rising in the refill hose. Once the refill hose is full of coolant, close the ball valve. This will purge any air trapped in the refill hose.

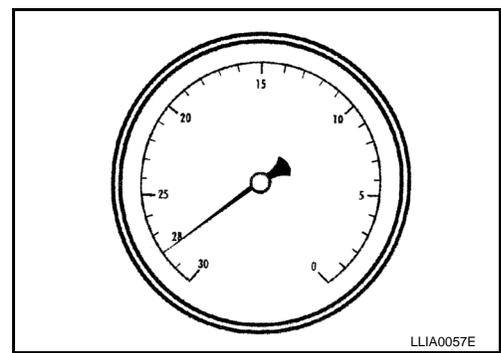


ENGINE MAINTENANCE

< SERVICE INFORMATION >

8. Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations, use the vacuum specifications below, based on the altitude above sea level.

Altitude above sea level	Vacuum gauge reading
0 - 100 m (328 ft)	: 28 inches of vacuum
300 m (984 ft)	: 27 inches of vacuum
500 m (1,641 ft)	: 26 inches of vacuum
1,000 m (3,281 ft)	: 24 - 25 inches of vacuum



9. When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for any leaks.
10. Place the coolant container (with the refill hose inserted) at the same level as the top of the radiator. Then open the ball valve on the refill hose so the coolant will be drawn up to fill the cooling system. The cooling system is full when the vacuum gauge reads zero.

CAUTION:

Do not allow the coolant container to get too low when filling, to avoid air from being drawn into the cooling system.

11. Remove the Tool from the radiator neck opening.
12. Fill the cooling system reservoir tank to the specified level, and install the radiator cap. Run the engine to warm up the cooling system and top up the system as necessary.

FLUSHING COOLING SYSTEM

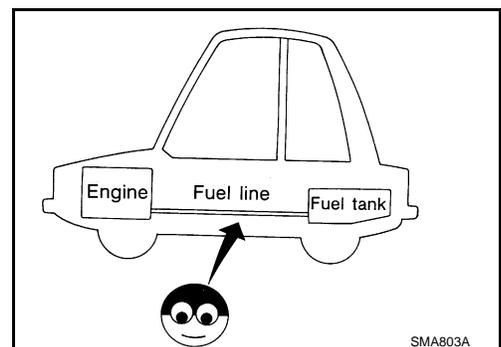
1. Fill the radiator from the filler neck above the radiator upper hose and reservoir tank with clean water and reinstall radiator filler cap.
2. Run the engine and warm it up to normal operating temperature.
3. Rev the engine two or three times under no-load.
4. Stop the engine and wait until it cools down.
5. Drain the water from the system. Refer to [MA-16. "ENGINE COOLANT : Changing Engine Coolant"](#).
6. Repeat steps 1 through 5 until clear water begins to drain from the radiator.

FUEL LINES

FUEL LINES : Checking Fuel Line

INFOID:000000004683866

Inspect fuel lines, filler cap and tank for improper attachment, leaks, cracks, damage, loose connections, chafing or deterioration. Repair or replace faulty parts as necessary.



AIR CLEANER FILTER

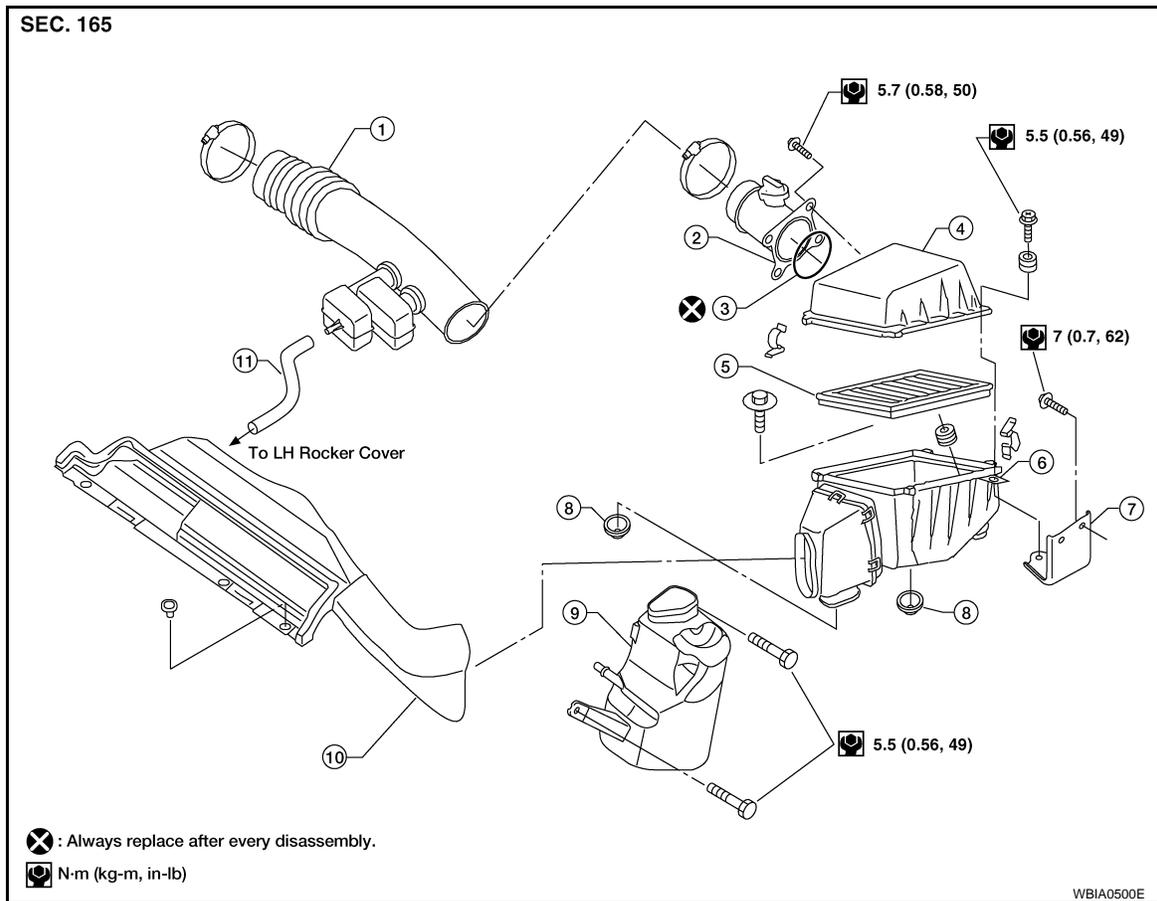
A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

ENGINE MAINTENANCE

< SERVICE INFORMATION >

AIR CLEANER FILTER : Removal and Installation

INFOID:000000004683867



- | | | |
|---|-------------------------|-----------------------------|
| 1. Air cleaner to electric throttle control actuator tube | 2. Mass air flow sensor | 3. O-ring |
| 4. Air cleaner case (upper) | 5. Air cleaner filter | 6. Air cleaner case (lower) |
| 7. Air cleaner case bracket | 8. Grommet | 9. Resonator (in fender) |
| 10. Fresh air duct | 11. PCV hose | |

REMOVAL

1. Remove the fresh air duct.
2. Disconnect the harness connector from the mass air flow sensor.
3. Disconnect the tube clamp at the electric throttle control actuator.
4. Disconnect the PCV hose.
5. Remove air cleaner to electric throttle control actuator tube, air cleaner case (upper) with the mass air flow sensor attached.
6. Remove mass air flow sensor from air cleaner case (upper), as necessary.
CAUTION:
Handle mass air flow sensor with care.
 - Do not shock it.
 - Do not disassemble it.
 - Do not touch it the sensor.
7. Remove the air cleaner case (lower).
8. Remove resonator in the fender, lifting left fender protector, as necessary.

INSTALLATION

Installation is in the reverse order of removal.

CHANGING AIR CLEANER FILTER

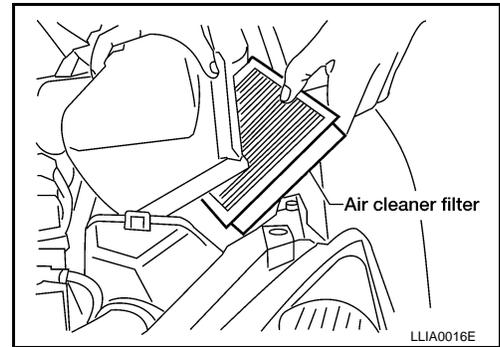
NOTE:

ENGINE MAINTENANCE

< SERVICE INFORMATION >

The viscous paper type filter does not need cleaning between replacement intervals. Refer to [MA-8](#).

1. Disconnect the tube clamp at the air cleaner to electric throttle control actuator tube at the mass air flow sensor.
2. Separate the mass air flow sensor from the air cleaner to electric throttle control actuator tube.
3. Unhook the air cleaner case side clips and remove the air cleaner case (upper).
4. Remove the air cleaner filter.
5. Install a new air cleaner filter.
6. Install the remaining components in the reverse order of removal.



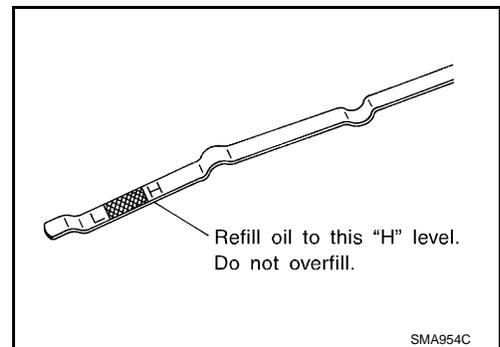
ENGINE OIL

ENGINE OIL : Inspection

INFOID:000000004683868

OIL LEVEL

- Before starting the engine make sure the vehicle is parked on a flat and level surface, then check the oil level. If the engine is already running, turn it off and allow five minutes before checking.
- Check that the oil level is within the low (L) and high (H) range as indicated on the dipstick.
- If the engine oil level is out of range, add oil as necessary.



OIL APPEARANCE

- Check engine oil for white milky or excessive contamination.
- If engine oil becomes milky, it is highly probable that it is contaminated with engine coolant. Repair or replace damaged parts.

OIL LEAKAGE

Check for oil leakage around the following areas:

- Upper and lower oil pan
- Oil pan drain plug
- Oil pressure switch
- Oil filter
- Oil cooler
- Water pump cover
- Timing chain tensioner cover
- Intake valve timing (IVT) control cover and intake valve timing (IVT) control solenoid valve
- Front cover
- Mating surface between cylinder block and cylinder head
- Mating surface between cylinder head and rocker cover
- Mating surface between the front timing chain case and rear timing chain case
- Crankshaft oil seal (front and rear)

OIL PRESSURE CHECK

WARNING:

- **Be careful not to burn yourself, as engine oil may be hot.**
- **Put the selector lever in the Park "P" position.**

1. Check the oil level.
2. Disconnect the oil pressure switch harness connector.
3. Remove the oil pressure switch.

CAUTION:

Do not drop or shock oil pressure switch.

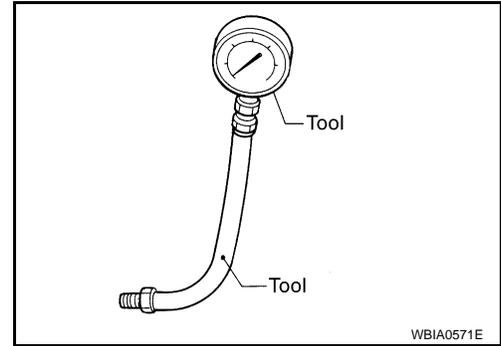
A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

ENGINE MAINTENANCE

< SERVICE INFORMATION >

4. Install Tools.

Tool numbers : ST25051001 (J-25695-1)
: ST25052000 (J-25695-2)



5. Start the engine and warm it up to normal operating temperature.
6. Check oil pressure with engine running under no-load. Refer to [LU-18, "Standard and Limit"](#).
CAUTION:
If the difference is extreme, check the oil passages and oil pump for leaks and blockages.
7. After the inspections, install the oil pressure switch as follows:
 - a. Remove the old sealant adhering to oil pressure switch and engine.
 - b. Apply thread sealant and tighten the oil pressure switch to specification.
 - Use Genuine High Performance Thread Sealant, or equivalent. Refer to [GI-42](#).

Oil pressure switch : 14.8 N-m (1.5 kg-m, 11 ft-lb)

ENGINE OIL : Changing Engine Oil

INFOID:000000004683869

WARNING:

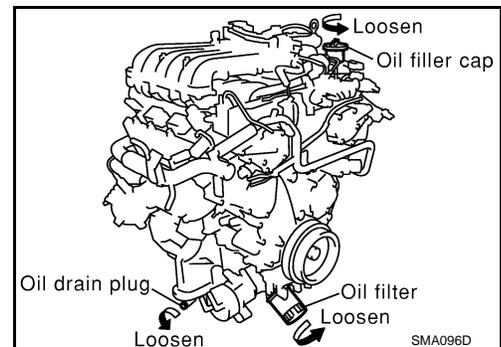
- Be careful not to burn yourself, as the engine oil may be hot.
- Prolonged and repeated contact with used engine oil may cause skin cancer; try to avoid direct skin contact with used oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

1. Park the vehicle on a flat and level surface, then start the engine to warm up the oil.
2. Check for oil leaks from the engine.
3. Stop the engine and wait for 10 minutes.
4. Remove the oil drain plug and oil filler cap.
5. Drain the engine oil.
6. Install the oil pan drain plug.

Oil pan drain plug : Refer to [EM-29](#)

CAUTION:

- Clean the oil pan drain plug and install using a new washer.

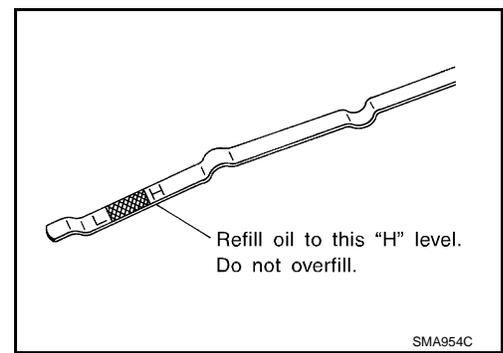


7. Refill the engine with new engine oil. Refer to [MA-12](#).
CAUTION:
 - The refill oil capacity depends on the oil temperature and drain time. Use these specifications for reference only.
 - Always use the dipstick to determine when the proper amount of oil is in the engine.
8. Warm up the engine and check the oil pan drain plug and oil filter for oil leaks.
9. Stop engine and wait at least 10 minutes.

ENGINE MAINTENANCE

< SERVICE INFORMATION >

10. Check engine oil level. Refer to [MA-21, "ENGINE OIL : Inspection"](#).



OIL FILTER

OIL FILTER : Removal and Installation

INFOID:000000004683870

REMOVAL

1. Remove the RH splash shield.
2. Remove the oil filter using Tool.

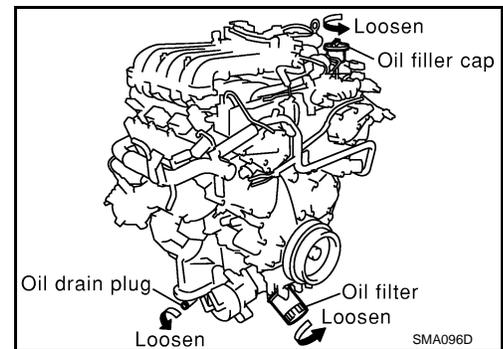
Tool number : KV10115801 (J-38956)

WARNING:

Be careful not to get burned, the engine and engine oil may be hot.

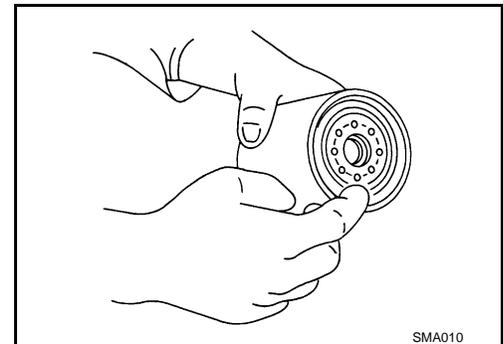
CAUTION:

- The oil filter is equipped with a relief valve. Use a Genuine NISSAN oil filter or equivalent.
- When removing the oil filter, use a shop cloth to absorb any oil leaks or spills.
- Do not allow engine oil to adhere to the drive belts.
- Completely wipe off any oil that adheres to the engine and the vehicle.



INSTALLATION

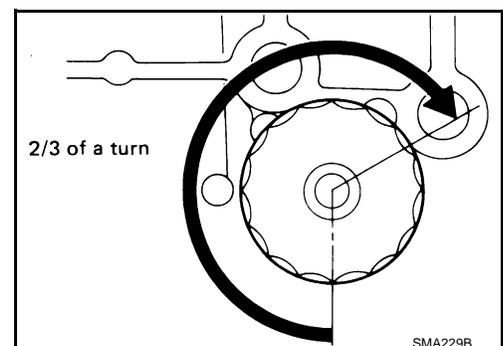
1. Remove any foreign material adhering to the oil filter installation surface.
2. Apply engine oil to the oil seal contact surface of the new oil filter as shown.



3. Screw the oil filter manually until it touches the installation surface, then tighten it by turning another 2/3 turn as shown. Or tighten to specification using Tool.

Oil filter : 17.6 N-m (1.8 kg-m, 13 lb-ft)

Tool number : KV10115801 (J-38956)



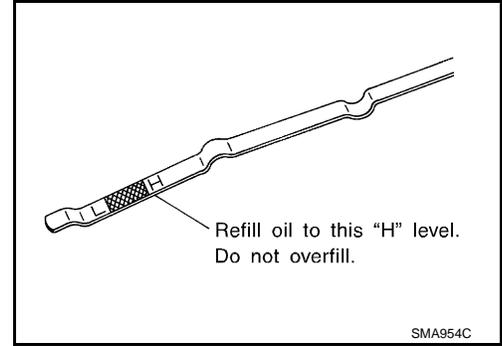
4. After warming up the engine, check for engine oil leaks.

A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

ENGINE MAINTENANCE

< SERVICE INFORMATION >

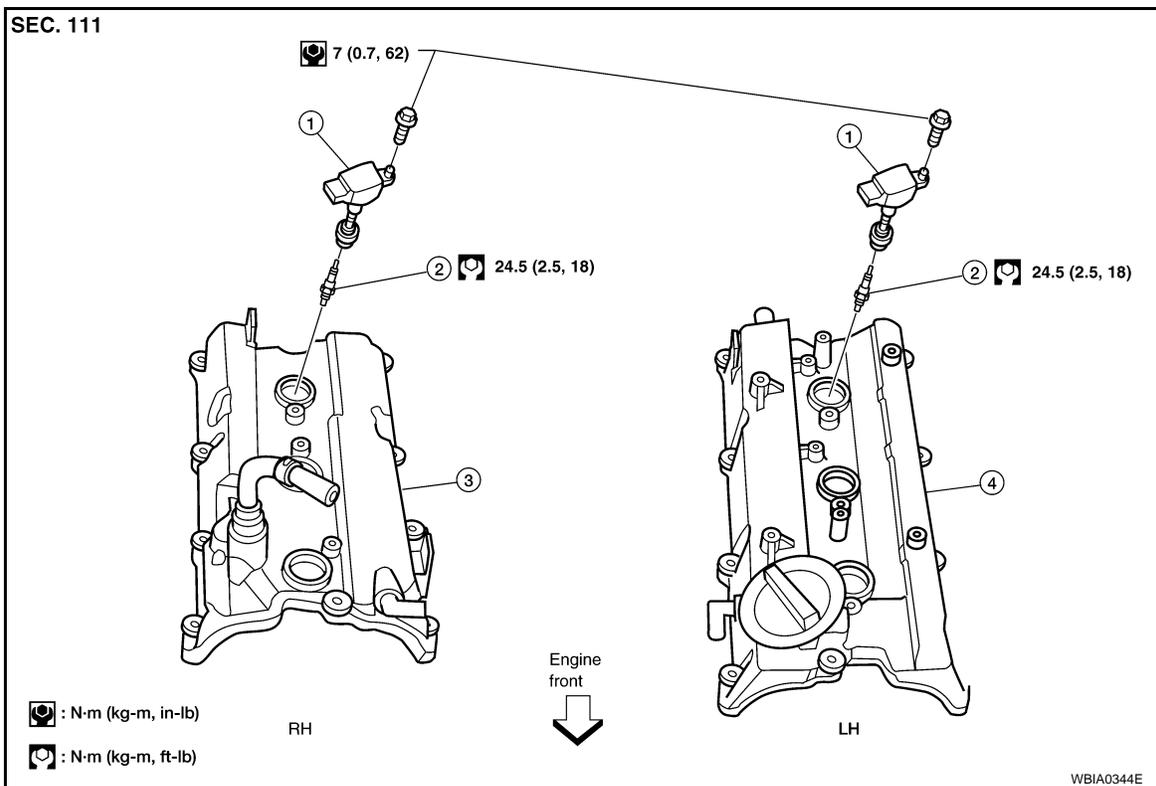
5. Install the RH splash shield.
6. Check engine oil level and add engine oil as necessary. Refer to [MA-21, "ENGINE OIL : Inspection"](#).



SPARK PLUG (PLATINUM-TIPPED TYPE)

SPARK PLUG (PLATINUM-TIPPED TYPE) : Removal and Installation

INFOID:000000004683871



1. Ignition coil
2. Spark plug
3. Rocker cover (RH)
4. Rocker cover (LH)

REMOVAL

1. Remove the ignition coils. Refer to [EM-35, "Removal and Installation LH"](#) and [EM-36, "Removal and Installation RH"](#).

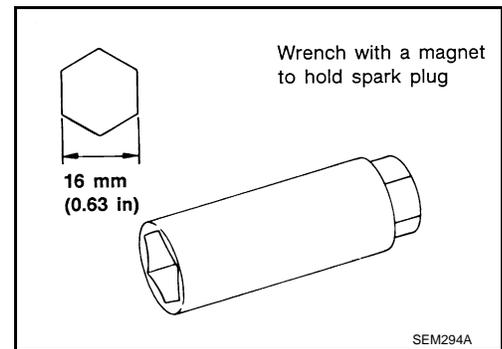
CAUTION:

Do not shock ignition coil.

ENGINE MAINTENANCE

< SERVICE INFORMATION >

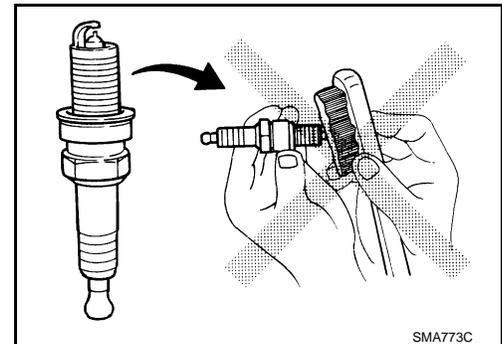
- Remove the spark plugs using a suitable tool.
 - If replacing the spark plugs use the correct spark plug for maximum performance. Refer to [EM-143, "Standard and Limit"](#).



INSPECTION AFTER REMOVAL

CAUTION:

- Do not use a wire brush for cleaning.
- Do not drop or shock spark plug.



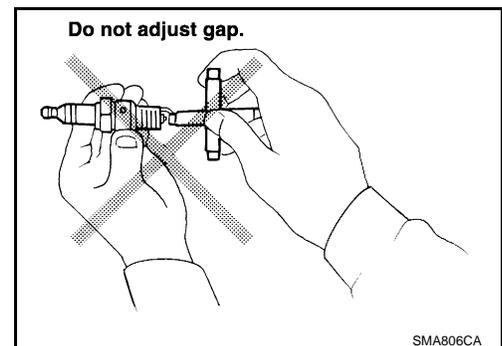
If spark plug tip is covered with carbon, a spark plug cleaner may be used.

Cleaner air pressure : less than 588 kPa (6 kg/cm², 85 psi)

Cleaning time : less than 20 seconds

Checking and adjusting spark plug gap is not required between change intervals.

Spark plug gap (nominal) : 1.1 mm (0.043 in)



INSTALLATION

Installation is in the reverse order of removal.

- Use standard type spark plug for normal driving conditions. Refer to [EM-143, "Standard and Limit"](#).
- The hot type spark plug is suitable when fouling occurs with the standard type spark plug under conditions such as:
 - Frequent engine starts
 - Low ambient temperatures
- The cold type spark plug is suitable when engine spark knock occurs with the standard type spark plug under conditions such as:
 - Extended highway driving
 - Frequent high engine revolution

EVAP VAPOR LINES

ENGINE MAINTENANCE

< SERVICE INFORMATION >

EVAP VAPOR LINES : Checking EVAP Vapor Line

INFOID:000000004278437

1. Visually inspect EVAP vapor lines for improper attachment and for cracks, damage, loose connections, chafing and deterioration.
2. Inspect fuel tank filler cap vacuum relief valve for clogging, and sticking.

CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

CHASSIS AND BODY MAINTENANCE

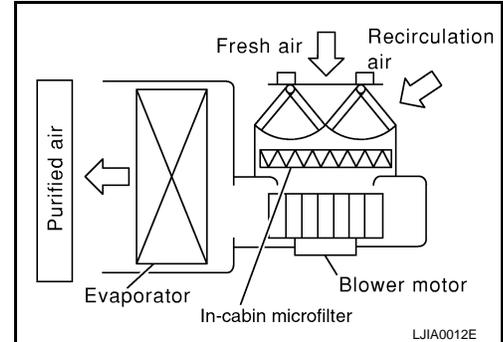
IN-CABIN MICROFILTER

IN-CABIN MICROFILTER : Removal and Installation

INFOID:000000004683872

FUNCTION

The air inside the passenger compartment is filtered by the in-cabin microfilters when the heater or A/C controls are set on either the recirculation or fresh mode. The two in-cabin microfilters are located in the front heater and cooling unit assembly. The rear heater and cooling unit assembly only draws in air from the passenger compartment to recirculate into the passenger compartment, so the rear heater and cooling unit assembly is not equipped with in-cabin microfilters.



REPLACEMENT TIMING

Replacement of the two in-cabin microfilters is recommended on a regular interval depending on the driving conditions. Refer to [MA-8](#). It may also be necessary to replace the two in-cabin microfilters as part of a component replacement if the in-cabin microfilters are damaged.

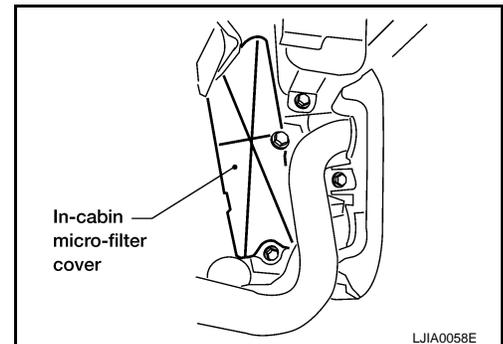
REPLACEMENT PROCEDURES

1. Remove the glove box assembly. Refer to [IP-14, "Glove Box"](#).
2. Remove the three screws and remove the in-cabin microfilter cover.
3. Remove the in-cabin microfilters from the front heater and cooling unit assembly.
4. Install the in-cabin microfilters, replacing the two in-cabin microfilters with new filters, into the front heater and cooling unit assembly.

CAUTION:

When installing the two new in-cabin microfilters make sure that the filters are facing in the direction indicated by the direction arrow for the air flow. The direction arrow is printed on the side of the in-cabin microfilters.

5. Install the in-cabin microfilter cover.
6. Install the glove box assembly. Refer to [IP-14, "Glove Box"](#).

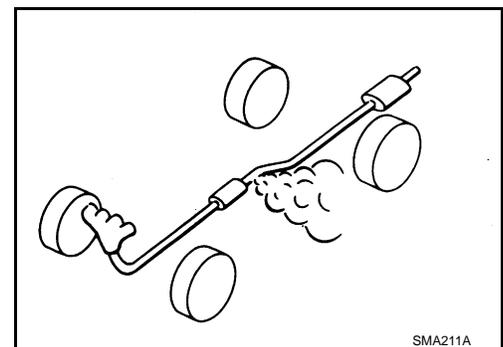


EXHAUST SYSTEM

EXHAUST SYSTEM : Checking Exhaust System

INFOID:000000004683873

Check the exhaust pipes, muffler, and mounting components for incorrect attachment, leaks, cracks, damage, or deterioration.



A/T FLUID

CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

A/T FLUID : Changing A/T Fluid

INFOID:000000004683874

1. Run the engine to warm up the transaxle until the fluid is at full operating temperature "HOT".

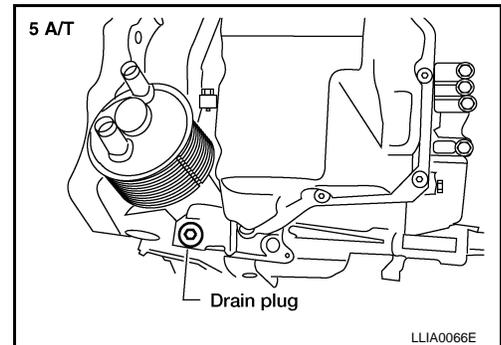
Temperature range

COLD : 30° – 40° C (86° – 104° F)

HOT : 70° – 80° C (158° – 176° F)

2. Stop the engine.
3. Remove the engine undercover.
4. Drain the A/T fluid by removing the drain plug. Reinstall the drain plug to the specified tightness using a new drain washer.

Drain plug : 39 N·m (4.0 kg·m, 29 ft·lb)



5. Refill the transaxle with new specified A/T fluid through the A/T fluid charging pipe. Always refill the transaxle with the same volume amount that was drained out.

Fluid grade and capacity : Refer to [MA-12](#).

CAUTION:

Do not overfill the transaxle.

6. Run the engine at idle speed for five minutes.
7. Check fluid level and condition. Refer to [AT-13](#), "[Checking A/T Fluid](#)". If the fluid is still contaminated, repeat step 2 through 5.

A/T FLUID : Checking A/T Fluid

INFOID:000000004683875

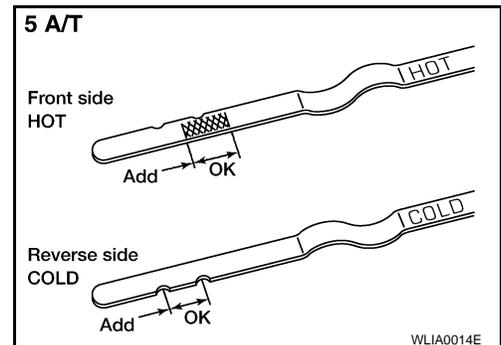
1. Warm up the engine.
2. Check for any transaxle fluid leaks.
3. Before driving, the fluid level can be checked at fluid temperature using the "COLD" range on the A/T fluid level gauge.

Temperature range

COLD : 30° – 40° C (86° – 104° F)

HOT : 70° – 80° C (158° – 176° F)

- a. Park the vehicle on a level surface and set parking brake.
- b. Start the engine and move the transaxle selector lever through each gear position. Leave the selector lever in the "P" park position.



CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

- c. Check the fluid level with the engine idling.

CAUTION:

Firmly secure the A/T fluid level gauge into the A/T fluid charging pipe using the attached stopper, this will provide an accurate reading on the gauge.

- d. Remove the A/T fluid level gauge and wipe it clean with a lint-free paper.
- e. Re-insert the A/T fluid level gauge into the charging pipe as far as it will go.
- f. Remove the A/T fluid level gauge and note the reading. If the reading is at or below the low side of the range, add the necessary specified A/T fluid through the A/T fluid charging pipe and then re-insert the A/T fluid level gauge.

CAUTION:

- **Do not overfill the transaxle.**
- **Firmly secure the A/T fluid level gauge into the A/T fluid charging pipe using the attached stopper, this will provide an accurate reading on the gauge, and will keep the gauge in position while driving.**

4. Drive the vehicle for approximately 5 minutes at moderate speeds.
5. Re-check the fluid level at fluid temperatures using the "HOT" range on the A/T fluid level gauge.

CAUTION:

Firmly secure the A/T fluid level gauge into the A/T fluid charging pipe using the attached stopper, this will provide an accurate reading on the gauge, and will keep the gauge in position while driving.

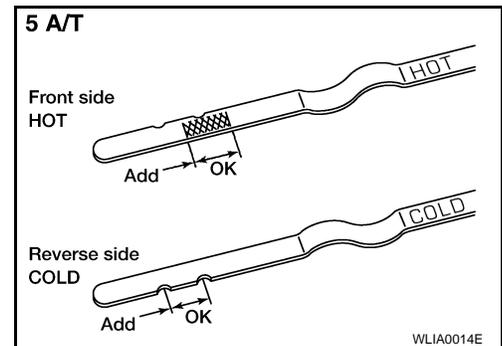
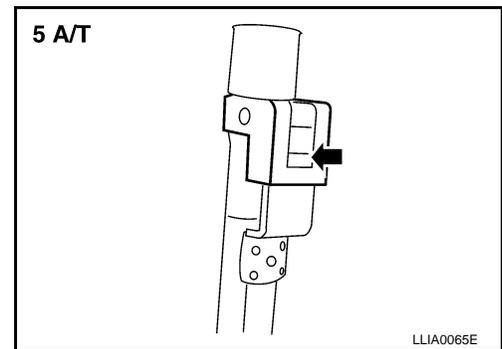
Temperature range

COLD : 30° – 40° C (86° – 104° F)

HOT : 70° – 80° C (158° – 176° F)

6. Check the fluid for the following conditions:

- If the fluid is very dark or smells burned, refer to the [MA-28, "A/T FLUID : Changing A/T Fluid"](#). Flush the AT fluid cooling system after repairing the transaxle.
- If the fluid contains frictional material (from the clutches or bands), remove the radiator and flush the cooler lines using a cleaning solvent and compressed air after completing repairs to the transaxle. Refer to [CO-16, "Removal and Installation"](#).



WHEELS

WHEELS : PAX Run Flat Tires and Wheels

INFOID:000000004683876

CAUTION:

- **Servicing PAX run flat tires and wheels requires special tire equipment and training. DO NOT service PAX Run Flat tires and wheels with conventional tire servicing equipment or damage to the tire and wheel will result.**
- **If a PAX run flat tire and wheel [or transmitter (pressure sensor)] requires service, and the proper servicing equipment is not available, then replace the complete PAX tire and wheel assembly.**

WHEELS : Conventional Tire and Wheel

INFOID:000000004683877

BALANCING WHEELS

1. Remove inner and outer balance weights from the road wheel.

CAUTION:

CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

Be careful not to scratch the road wheel during removal.

- Using releasing agent, remove double-faced adhesive tape from the road wheel.

CAUTION:

- **Be careful not to scratch the road wheel during removal.**
- **After removing double-faced adhesive tape, wipe clean traces of releasing agent from the road wheel.**

- Set road wheel on wheel balancer using the center hole as a guide. Start the tire balance machine.

- If a tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for road wheels.

- When inner and outer unbalance values are shown on the wheel balancer indicator, multiply outer unbalance value by 1.6 to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install it to the designated outer position of, or at the designated angle in relation to the road wheel.

CAUTION:

- **Do not install the inner balance weight before installing the outer balance weight.**
- **Before installing the balance weight, be sure to clean the mating surface of the road wheel.**

Calculation:

Indicated unbalance value \times 1.6 = balance weight to be installed

Calculation example:

23 g (0.81 oz) \times 1.6 = 38.33 g (1.35 oz) = 40 g (1.41 oz) balance weight (closer to calculated balance weight value)

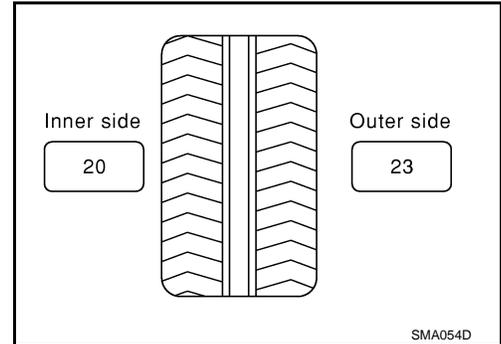
NOTE:

The selected balance weight value must be the closest balance weight available to the calculated balance weight value.

Example:

37.4 = 35 g (1.23 oz)

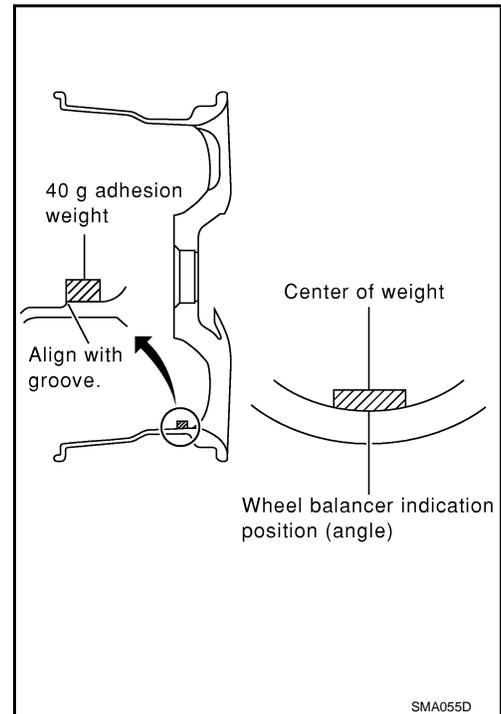
37.5 = 40 g (1.41 oz)



- Install balance weight in the position shown.
- When installing balance weight to road wheels, set it into the grooved area on the inner wall of the road wheel as shown in the figure so that the balance weight center is aligned with the wheel balancer indication position (angle).

CAUTION:

- **Always use Genuine NISSAN adhesion balance weights.**
- **Balance weights are not reusable; always replace with new ones.**
- **Do not install more than three pieces of balance weight.**



CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

- c. If calculated balance weight value exceeds 50 g (1.76 oz), install two balance weight pieces in line with each other (as shown in the figure).

CAUTION:

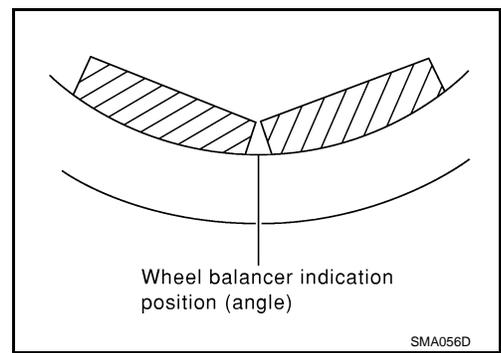
Do not install one balance weight piece on top of another.

- 5. Start wheel balancer again.
- 6. Install drive-in balance weight on inner side of road wheel in the wheel balancer indication position (angle).

CAUTION:

Do not install more than two balance weights.

- 7. Start wheel balancer. Make sure that inner and outer residual unbalance values are 5 g (0.18 oz) each or less.
 - If either residual unbalance value exceeds 5 g (0.18 oz), repeat installation procedures.
- Wheel balance (Maximum allowable unbalance):**



Maximum allowable unbalance	Dynamic (At rim flange)	Less than 5 g (0.18 oz) (per side)
	Static (At rim flange)	Less than 10 g (0.35 oz.)

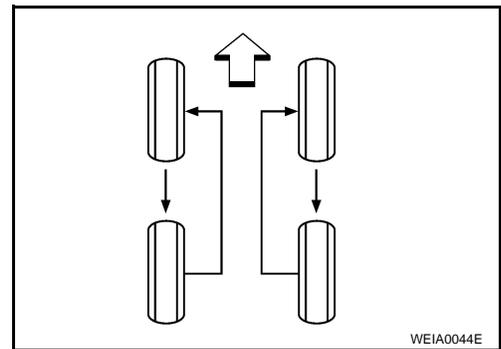
ROTATION

- After rotating the tires, adjust the tire pressure.
- Retighten the wheel nuts when the vehicle has been driven for 1,000 km (600 miles) (also in cases of a flat tire, etc.).

CAUTION:

When installing wheels, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.

Tightening torque : 112 N·m (11 kg·m, 83 ft·lb) of wheel nut

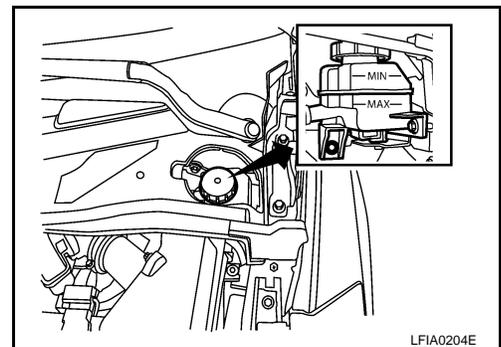


BRAKE FLUID LEVEL AND LEAKS

BRAKE FLUID LEVEL AND LEAKS : Checking Brake Fluid Level and Leaks

INFOID:000000004278444

- Check the brake fluid level in the sub tank. It should be between the “MAX” and “MIN” lines on the sub tank.
- Visually check around the reservoir tank and sub tank for leaks.
- If the brake fluid level is extremely low or below the “MIN” level, check the brake system for leaks.
- Release the parking brake lever and check that the brake warning lamp goes off. If not, check the brake system for leaks.



BRAKE LINES AND CABLES

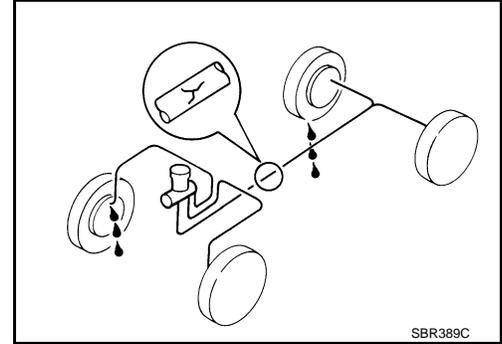
CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

BRAKE LINES AND CABLES : Checking Brake Line and Cables

INFOID:000000004278445

Check the brake fluid lines and parking brake cables for improper attachment, leaks, chafing, abrasions, deterioration, and damage. Repair or replace parts as necessary.



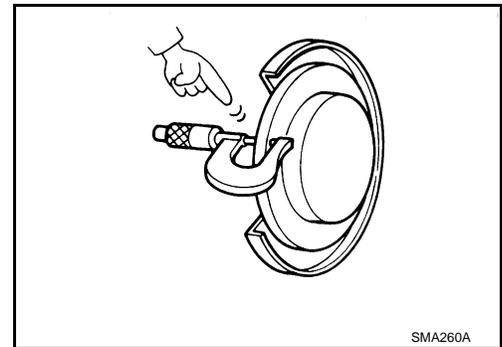
DISC BRAKE

DISC BRAKE : Checking Disc Brake

INFOID:000000004278446

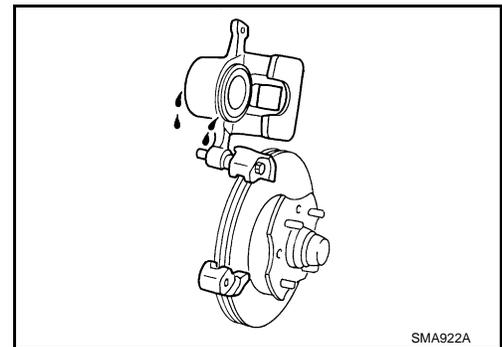
ROTOR

Check the rotor condition and thickness. Resurface or replace the rotor as necessary. Refer to [BR-40, "Disc Brake"](#).



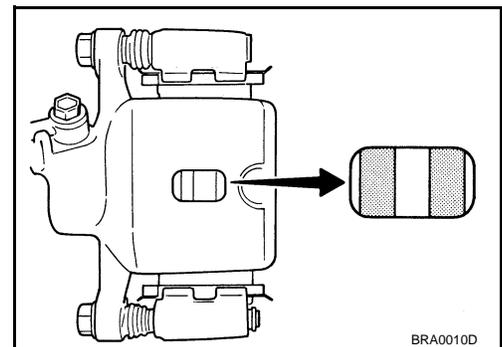
CALIPER

Check the caliper for leakage.



PAD

Check the brake pads for wear or damage. Refer to [BR-40, "Disc Brake"](#).



STEERING GEAR AND LINKAGE

CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

STEERING GEAR AND LINKAGE : Checking Steering Gear and Linkage

INFOID:000000004278447

STEERING GEAR

- Check the gear housing and boots for looseness, damage and power steering fluid leaks.
- Check the power steering hose connections for leaks.
- Check the steering column for looseness.

STEERING LINKAGE

Check the ball joint, dust cover and other component parts for looseness, wear, damage and grease leaks.

POWER STEERING FLUID AND LINES

POWER STEERING FLUID AND LINES : Checking Power Steering Fluid and Line

INFOID:000000004278448

CHECKING FLUID LEVEL

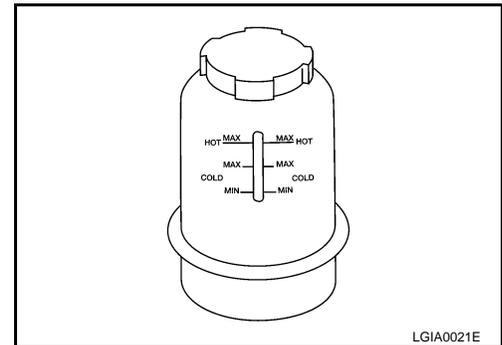
Check the power steering fluid level in the reservoir tank with the engine off.

Use the "HOT" range or the "COLD" range fluid temperatures.

"HOT" range PSF temperature	: 50° – 80° C (122° – 176° F)
"COLD" range PSF temperature	: 0° – 30° C (32° – 86° F)

CAUTION:

- Do not overfill the power steering reservoir tank.
- Do not reuse any used power steering fluid.
- Use the recommended power steering fluid. Refer to [MA-12](#).



CHECKING FLUID LEAKS

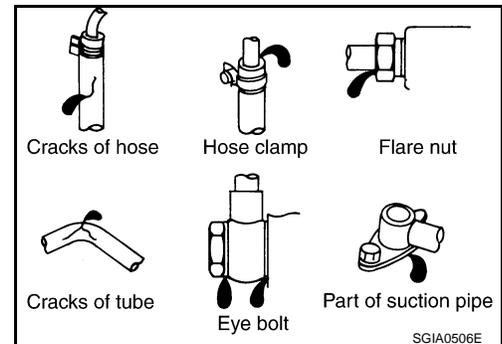
Check the lines for improper attachment and for leaks, cracks, damage, loose connections, chafing and deterioration.

1. Run engine between idle speed and 1,000 rpm. Make sure temperature of fluid in oil tank rises to 60° – 80°C (140° – 176°F).
2. Turn steering wheel right-to-left several times.
3. Hold steering wheel at each lock position for five seconds and carefully check for fluid leaks.

CAUTION:

Do not hold the steering wheel in a locked position for more than 15 seconds.

4. If fluid leaks at the connectors are noticed, loosen the flare nut and then retighten to specification. Do not overtighten connector as this can damage O-ring, washer and connector.
5. If fluid leaks from the power steering oil pump are noticed, check the power steering oil pump. Refer to [PS-23. "Disassembly and Assembly"](#).
6. Check steering gear boots for accumulation of power steering fluid, indicating a steering gear fluid leak.



AXLE AND SUSPENSION PARTS

CHASSIS AND BODY MAINTENANCE

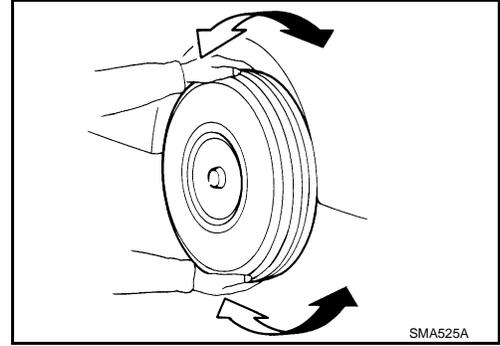
< SERVICE INFORMATION >

AXLE AND SUSPENSION PARTS : Axle and Suspension Parts

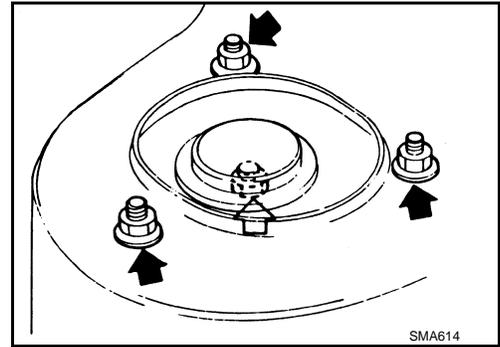
INFOID:000000004278449

Check the front and rear axle and suspension parts for excessive play, cracks, wear, or other damage.

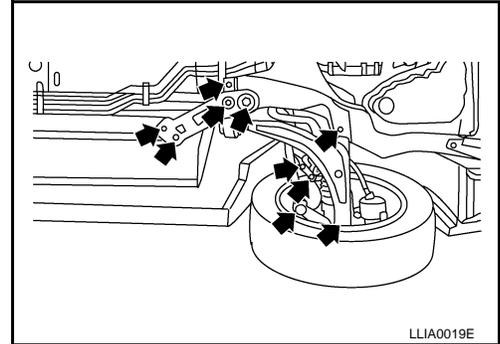
- Shake each wheel as shown to check for excessive play.
- Rotate each wheel to check for abnormal noise.



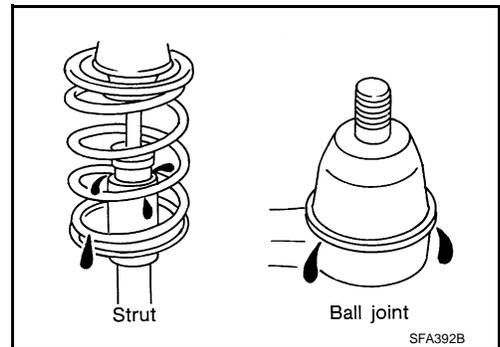
- Check the strut mount nuts for looseness.



- Check the axle and suspension nuts and bolts for looseness.



- Check the struts for oil leakage or other damage.
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.



DRIVE SHAFT

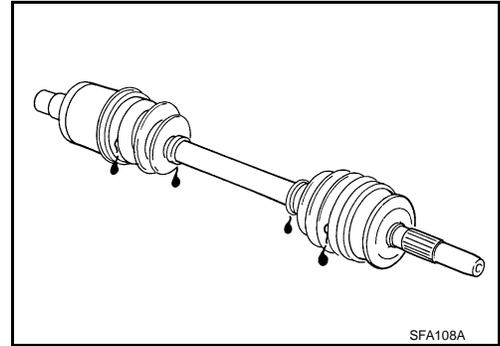
CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

DRIVE SHAFT : Drive Shaft

INFOID:000000004278450

- Check the boot and drive shaft for cracks, wear, damage and grease leakage as shown.



SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS

SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS : Checking Seat Belts, Buckles, Retractors, Anchors and Adjusters

INFOID:000000004278452

Check the seat belt buckles, webbing, retractors, anchors and adjusters. Replace any seat belt assembly as necessary. Refer to [SB-9, "Seat Belt Inspection"](#).

- Check the seat belt anchors for loose bolts, damage, or excessive wear.
- Check the seat belt webbing for any damage, cuts, fraying, or excessive wear.
- Check the retractor for smooth operation.
- Check the function of the buckles by inserting the seat belt tongue and checking for proper engagement of the buckle and press the button on the buckle to check for proper release of the seat belt tongue.

CAUTION:

- **After any collision, inspect all seat belt assemblies, including retractors and other attached components, such as the guide rail set. NISSAN recommends replacing all seat belt assemblies in use during a collision, unless they are not damaged and are inspected to confirm they are operating properly after a minor collision.**

Also inspect all seat belt assemblies that are not in use during a collision, and replace any components if damaged or not operating properly. The seat belt pre-tensioner should be replaced even if the seat belts are not in use during a frontal collision where the driver and passenger air bags have been deployed.

- **If any component of the seat belt assembly is suspected of being damaged or not operating properly, do not repair the component. Replace the components as an assembly.**
- **If the seat belt webbing is cut, frayed, or damaged then replace the seat belt assembly.**
- **Never lubricate the seat belt buckle or tongue.**
- **When replacing any seat belt assembly always use a Genuine NISSAN seat belt assembly.**

LOCKS, HINGES AND HOOD LATCH

A
B
C
D
E
F
G
H
I
J
K
MA
M
N
O
P

CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

LOCKS, HINGES AND HOOD LATCH : Lubricating Locks, Hinges and Hood Latch

INFOID:000000004278451

