

SECTION MA

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★: Refer to Service Manual "DATSUN 280ZX MODEL S130 SERIES".

MAINTENANCE SCHEDULE

The following tables list the periodic maintenance servicing required to ensure good emission control performance, good engine performance and good mechanical condition in DATSUN.

The first 1,600 km (1,000 miles) service is one of the most important services required to ensure the maximum emission control performance and optimum engine condition.

MAINTENANCE OPERATION Periodic maintenance should be performed at number of miles, kilometers or months, whichever comes first.	MAINTENANCE INTERVAL								Reference page
	Kilometers x 1,000	1.6	12	24	36	48	60	72	
	Miles x 1,000	(1)	(7.5)	(15)	(22.5)	(30)	(37.5)	(45)	
Months	–	6	12	18	24	30	36		

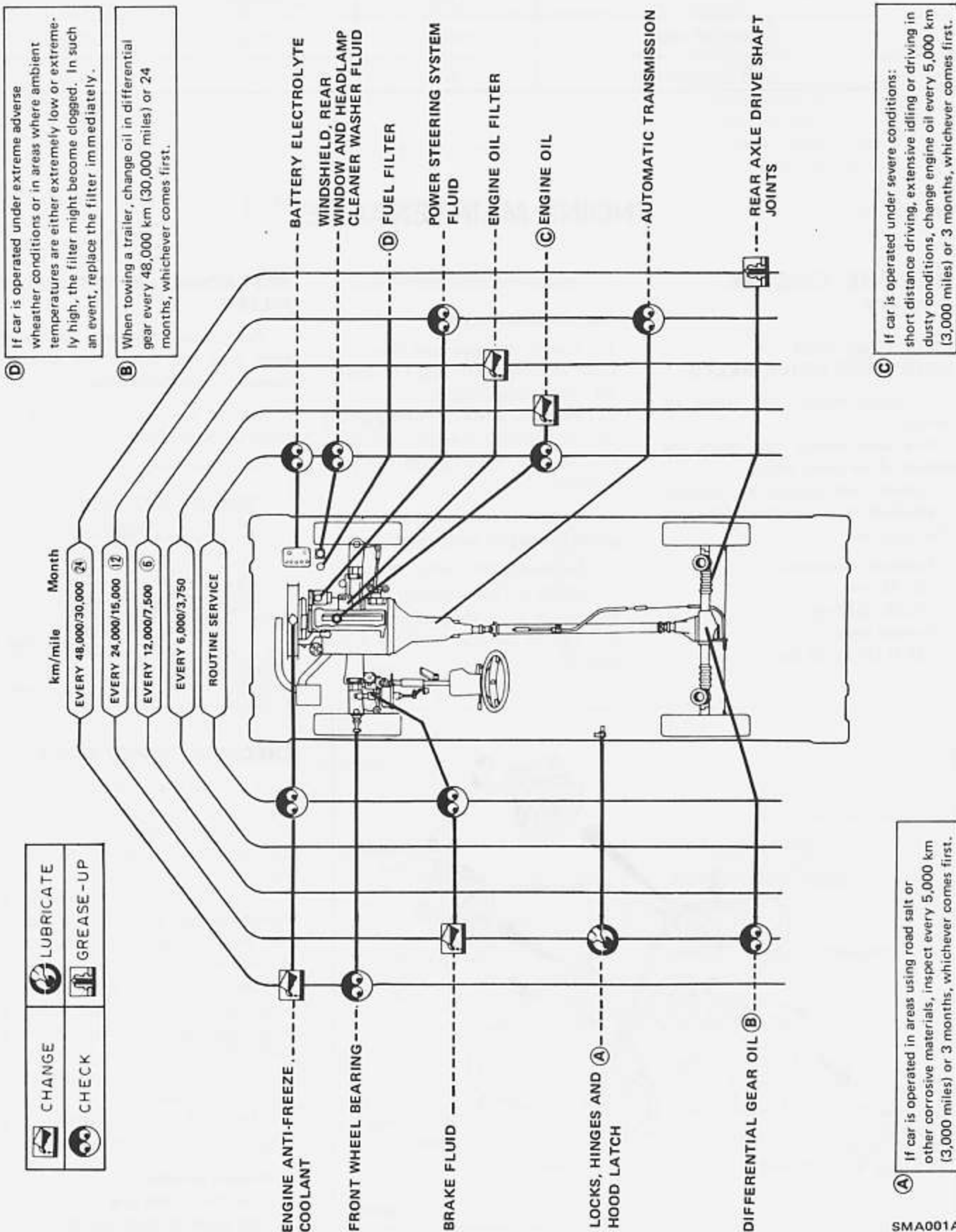
EMISSION CONTROL MAINTENANCE

Drive belts						I			MA-4
Air cleaner filter	See NOTE: (2)					R			MA-4
* Vapor lines						I			MA-4
* Fuel lines (hoses, pipings, connections, etc.)						I			MA-5
* Fuel filter	See NOTE: (3)								MA-5
Engine coolant						R			MA-6
Engine oil	See NOTE: (1)	R: every 6,000 km (3,750 miles)							MA-7
Engine oil filter		R	R	R	R	R	R	R	MA-7
Engine oil filter						R			MA-8
Spark plugs						I			MA-8
* Ignition wiring						I			MA-8
Intake & Exhaust valve clearance	A		A			A		A	MA-8
Exhaust gas sensor						I			MA-10

- NOTE:** (1) If car is operated under severe conditions: short distance driving, extensive idling or driving in dusty conditions, change engine oil every 5,000 km (3,000 miles) or 3 months, whichever comes first.
- (2) More frequent maintenance is required under dusty driving conditions.
- (3) If car is operated under extremely adverse weather conditions or in areas where ambient temperatures are either extremely low or extremely high, the filters might become clogged. In such an event, replace them immediately.
- (4) Maintenance items with "*" are recommended by NISSAN MOTOR CO., LTD.
- Other maintenance items and intervals are required.

Abbreviations: A = Adjust
 R = Replace
 I = Inspect, correct, replace if necessary.

LUBRICATION CHART



SMA001A

APPROXIMATE REFILL CAPACITIES

		Liter	US measure	Imp measure
Engine	With oil filter	5.2	5-1/2 qt	4-5/8 qt
	Without oil filter	4.7	5 qt	4-1/8 qt

ENGINE MAINTENANCE

BEFORE ENGINE START

CHECKING AND ADJUSTING DRIVE BELTS

1. Visually inspect for cracks or damage.

The belts should not touch the bottom of the pulley groove.

2. Check belt tension by pushing.

The belts should deflect by the specified amount.

Drive belt deflection:

8 - 12 mm
(0.31 - 0.47 in)

Pushing force:

98 N (10 kg, 22 lb)

3. Adjust belt tension as follows:

Fan and alternator belt

1. Loosen the upper and lower alternator securing bolts until the alternator can be moved slightly.
2. Move the alternator with a prying bar until the belt tension is the specified amount. Then tighten the bolts securely.

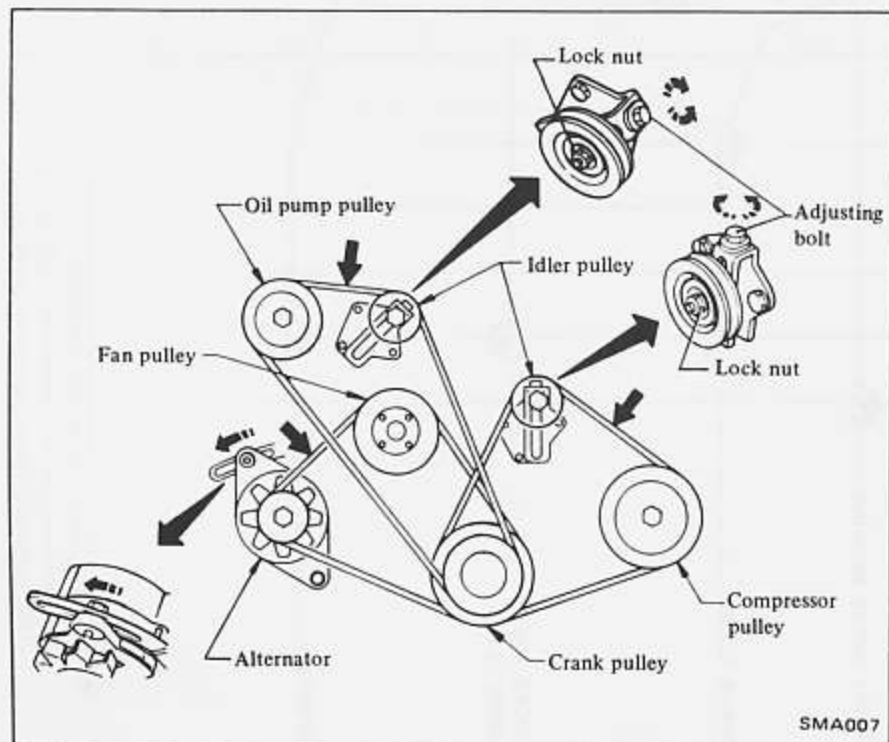
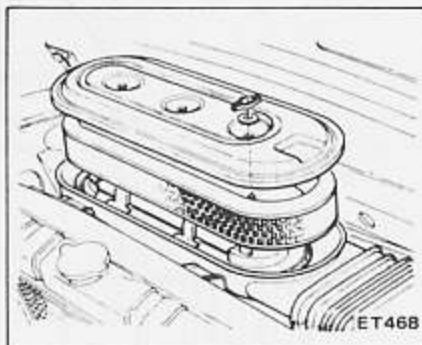
Air conditioner compressor and power steering oil pump belts

1. Loosen the idler pulley lock nut.
2. Adjust the adjusting bolt until the belt tension is the specified amount.
3. Tighten the idler pulley lock nut securely.

REPLACING AIR CLEANER FILTER

The viscous paper type air cleaner filter does not require any cleaning operation between renewal.

Remove air cleaner cover and remove air cleaner filter.



CHECKING VAPOR LINES

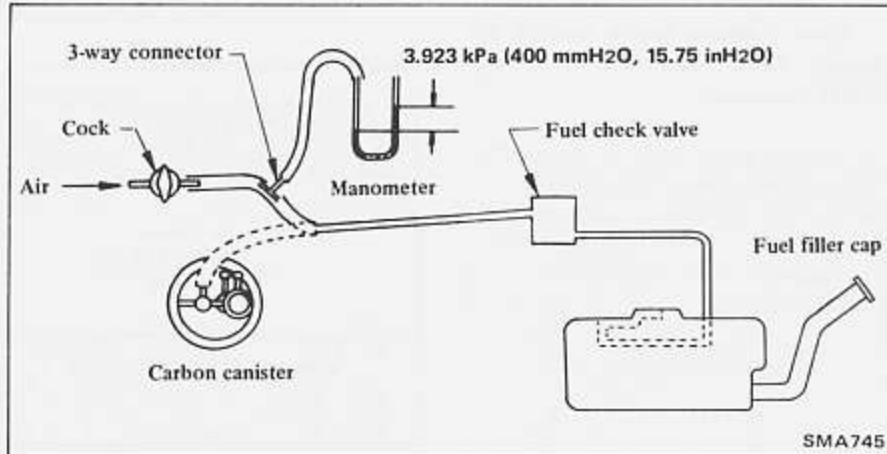
1. Check all hoses and fuel tank filler cap.
2. Disconnect vapor vent line connecting carbon canister to check valve.
3. Connect a 3-way connector, a manometer and a cock (or an equivalent 3-way charge cock) to the end of the vent line.
4. Supply fresh air into the vapor vent line through the cock little by little until pressure becomes 3.923 kPa (400 mmH₂O, 15.75 inH₂O).
5. Shut the cock completely and leave it unattended.
6. After 2.5 minutes, measure the height of the liquid in the manometer.

Pressure variation:

Less than 0.245 kPa
(25 mmH₂O, 0.98 inH₂O)

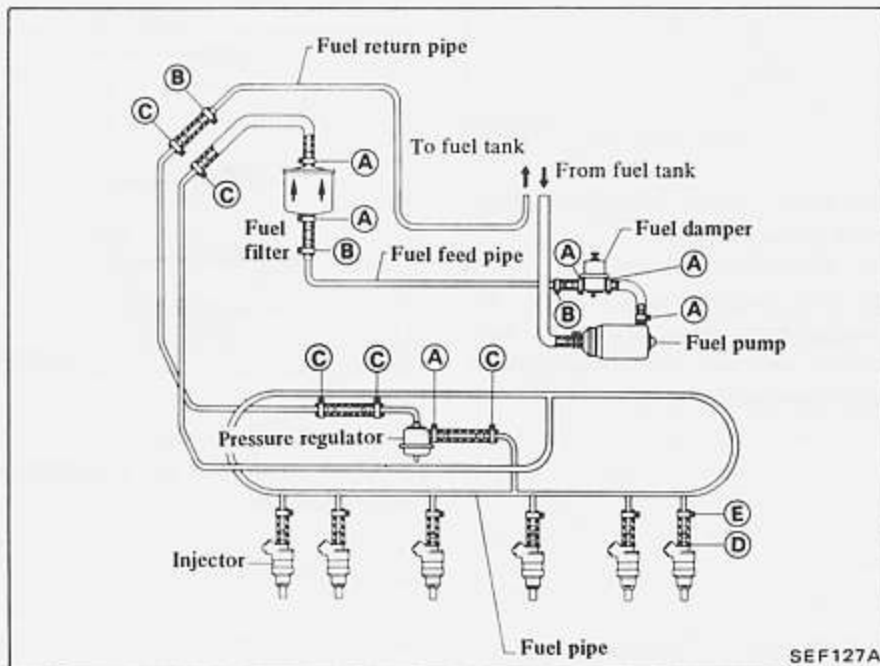
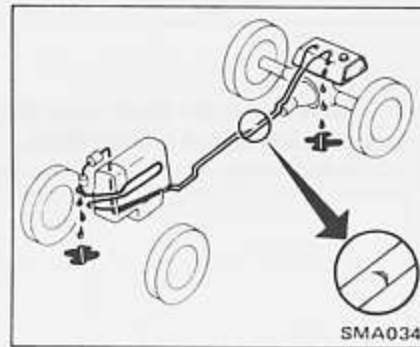
- (1) When filler cap does not close completely, the height should drop to zero in a short time.
- (2) If the height does not drop to zero in a short time when filler cap is removed, it is the cause of a stuffy hose.

In case the vent line is stuffy, the breathing in fuel tank is not thoroughly made, thus causing insufficient delivery of fuel to engine or vapor lock. It must, therefore, be repaired or replaced.



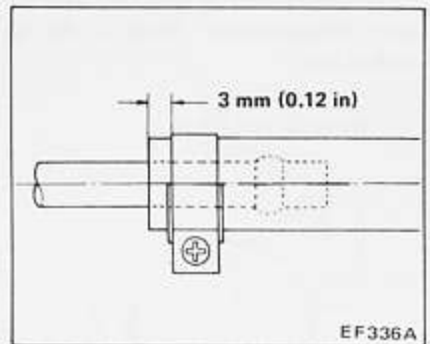
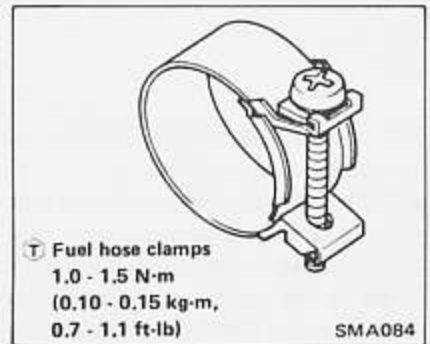
CHECKING FUEL LINES (Hoses, piping, connections, etc.)

1. Check fuel line for leaks, particularly around connection of fuel pipe and fuel hose.
2. Retighten loose connections and replace any damage or deformed parts.



CAUTION:

- a. Do not reuse fuel hose clamp after loosening.
- b. Tighten high pressure rubber hose clamp so that clamp end is 3 mm (0.12 in) from hose end or screw position (wider than other portions of clamp) is flush with hose end. Tightening torque specifications are the same for all rubber hose clamps. When tightening hose clamp, ensure that screw does not come into contact with adjacent parts.



REPLACING FUEL FILTER

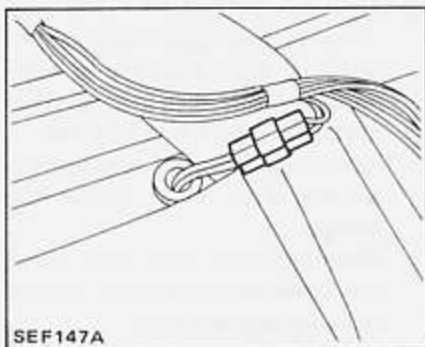
The fuel filter is designed especially for use with the EFI system. It should be replaced as an assembly.

1. Follow the procedure below to reduce fuel pressure to zero.

CAUTION:

Before disconnecting fuel hose, release fuel pressure from fuel line to eliminate danger.

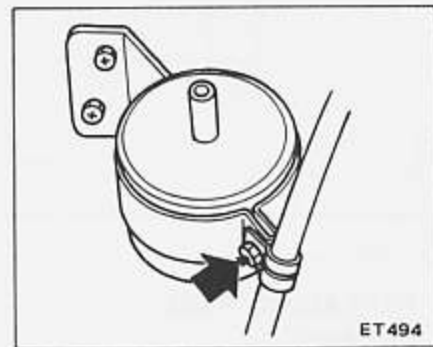
- (1) Start the engine.
- (2) Remove fuel pump connector with engine running.



- (3) After engine stall, crank the engine twice or three times.
 - (4) Turn ignition switch off and connect fuel pump connector.
2. Unfasten clamps securing fuel hoses to the outlet and inlet sides of fuel filter, and disconnect fuel hoses.

Be careful not to spill fuel over engine compartment. Place a rag to absorb fuel.

3. Remove fuel filter.



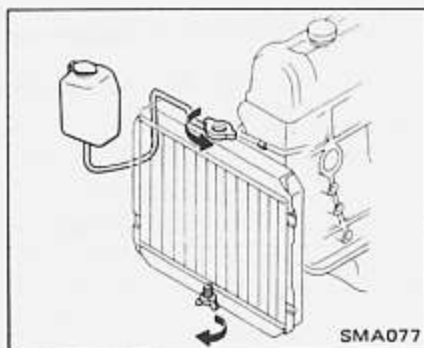
4. To install fuel filter, reverse the order of removal.

CHANGING ENGINE COOLANT

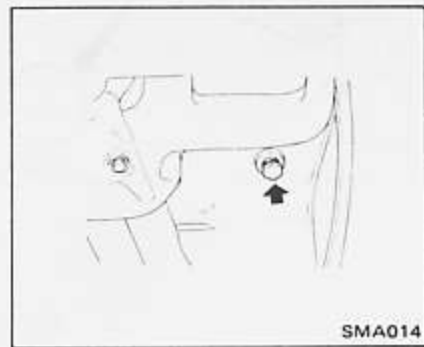
WARNING:
To avoid the danger of being scalded, never attempt to change the coolant when the engine is hot.

When changing engine coolant, set heater "TEMP" control lever at fully "HOT" position.

1. Open drain cock at bottom of radiator, and remove radiator cap.



2. Remove cylinder block drain plug located at left rear of cylinder block.



3. Drain coolant completely. Then flush cooling system.
4. Close drain cock and plug.
5. Fill radiator with coolant, observing instructions attached to anti-freeze container for mixing ratio of anti-freeze to water.

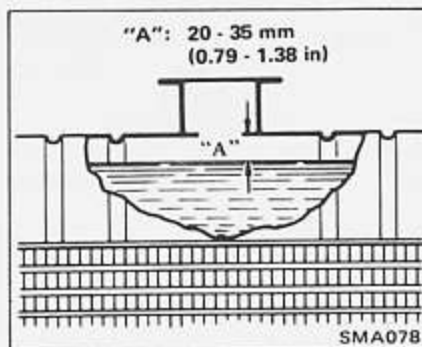
Cooling water capacity:

Unit: liter (US qt, Imp qt)

With coolant reservoir	10.5 (11-1/8, 9-1/4)
Without coolant reservoir	9.7 (10-1/4, 8-1/2)

Without coolant reservoir

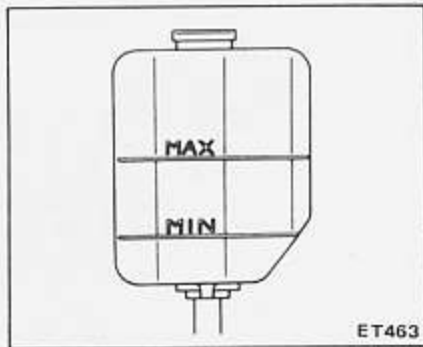
- (1) Fill radiator with coolant at "A" mm (in) below the bottom of the radiator filler neck.



- (2) Run engine for a few minutes. If necessary, add coolant.

With coolant reservoir

- (1) Fill radiator with coolant up to filler opening.
- (2) Run engine for a few minutes. If necessary, add coolant.
- (3) Fill reservoir tank with coolant up to "MAX" level.



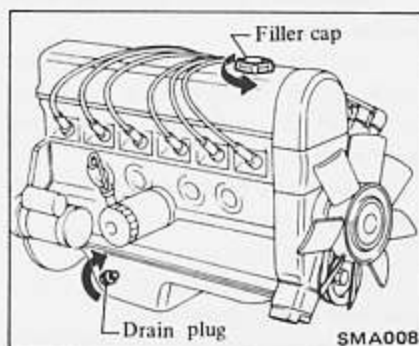
6. Install radiator cap.
Check drain cock and plug for any sign of leakage.

CHANGING ENGINE OIL AND OIL FILTER

1. Start engine and warm up engine until water temperature indicator points to the middle of gauge, then stop engine.
2. Remove oil filler cap and oil pan drain plug, and allow oil to drain.

WARNING:

Be careful not to burn yourself, as the engine oil may be hot.

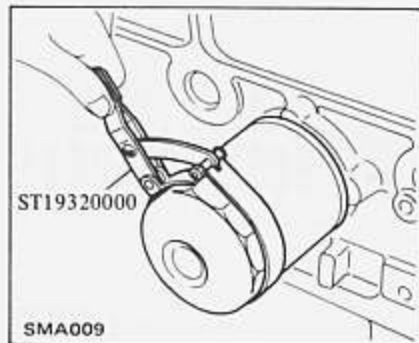


- A milky oil indicates the presence of cooling water. Isolate the cause and take corrective measure.
- An oil with extremely low viscosity indicates dilution with gasoline.

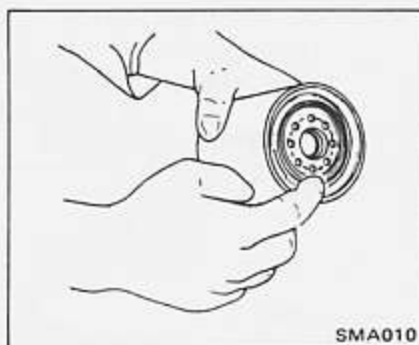
3. Clean and install oil pan drain plug with washer.

ⓘ : Oil pan drain plug
 20 - 29 N·m
 (2.0 - 3.0 kg·m,
 14 - 22 ft·lb)

4. Using Tool, remove oil filter.



5. Wipe oil filter mounting surface with a clean rag.
6. Smear a little engine oil on rubber gasket of new oil filter.



7. Install new oil filter. Hand-tighten ONLY. DO NOT use a wrench to tighten the filter.

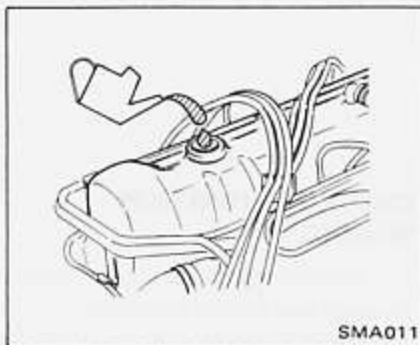
8. Refill engine with new engine oil, referring to RECOMMENDED LUBRICANTS.

Check oil level with dipstick.

Oil capacity:

Unit: liters (US qt, Imp qt)

With oil filter	5.2 (5-1/2, 4-5/8)
Without oil filter	4.7 (5, 4-1/8)

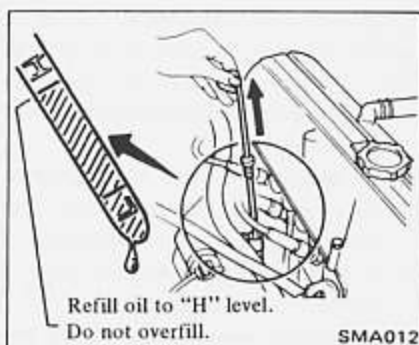


9. Start engine. Check area around drain plug and oil filter for any sign of oil leakage.

If any leakage is evident, these parts have not been properly installed.

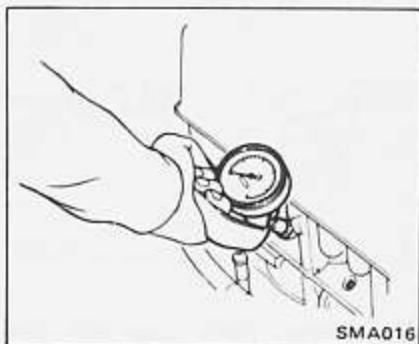
10. Run engine until water temperature indicator points to the middle of gauge. Then stop engine and wait several minutes. Check oil level with dipstick. If necessary, add engine oil.

When checking oil level, park the car on a level surface.



CHECKING ENGINE COMPRESSION PRESSURE

1. Warm up engine until water temperature indicator points to the middle of gauge.
2. Disconnect all spark plugs with spark plug wrench.
3. Disconnect all injector connectors.
4. Properly attach a compression tester to spark plug hole in cylinder being tested.



5. Depress accelerator pedal to open throttle valve fully.
6. Crank engine and read gauge indication.
 - Run engine at about 350 rpm.
 - Engine compression measurement should be made as quickly as possible.

Compression pressure:

Unit: kPa (kg/cm², psi)/rpm

Standard	981 (10.0, 142)/350
Minimum	686 (7.0, 100)/350

7. Cylinder compression in cylinders should not be less than 80% of the highest reading.

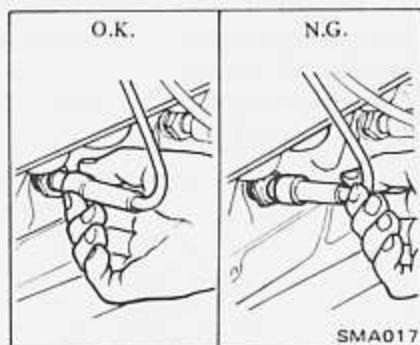
If cylinder compression in one or more cylinders is low, pour a small quantity of engine oil into cylinders through the spark plug holes and retest compression.

- If adding oil helps the compression pressure, chances are that piston rings are worn or damaged.
- If pressure stays low, valve may be sticking or seating improperly.
- If cylinder compression in any two adjacent cylinders is low, and if adding oil does not help the compression, there is leakage past the gasketed surface.

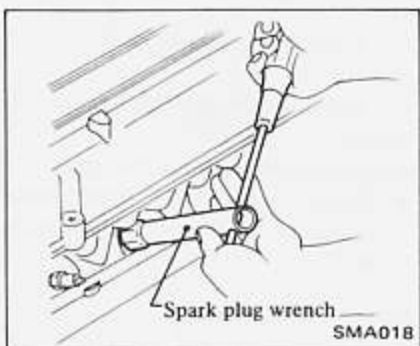
Oil and water in combustion chambers can result from this problem.

REPLACING SPARK PLUGS

1. Disconnect spark plug wire at boot. Do not pull on the wires.

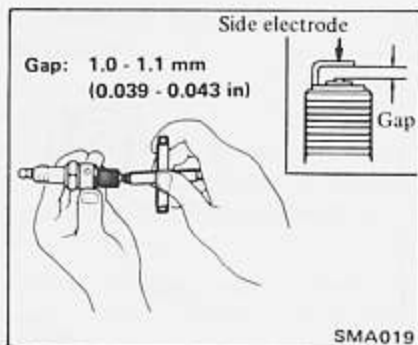


2. Remove spark plugs with spark plug wrench.



3. Using feeler gauge, check new spark plug gap.

If it is not within specified range, set gap by bending side electrode.



Spark plug:

Standard type	BPR6ES-11*
Cold type	BPR7ES-11*

*: Resistor built-in type

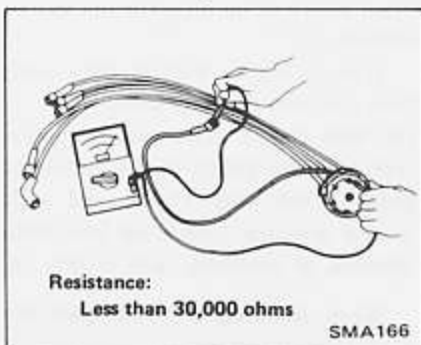
4. Install new spark plugs.

Reconnect high tension cables according to Nos. indicated on them.

- Ⓢ : Spark plug
 15 - 20 N·m
 (1.5 - 2.0 kg·m,
 11 - 14 ft·lb)

CHECKING IGNITION WIRING

1. Visually check wiring for cracks, damaged and burned terminals.
2. Using an ohmmeter, measure the resistance between cable terminal on the spark plug side and corresponding electrode inside cap.



Resistance:
 Less than 30,000 ohms

Shake the wire while measuring resistance to check for intermittent breaks.

AFTER ENGINE WARM-UP

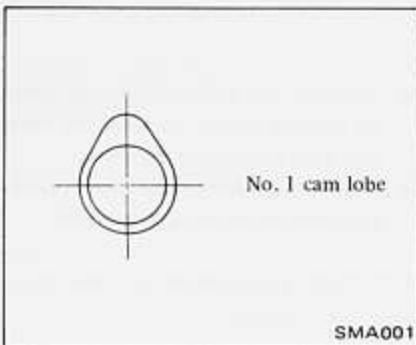
ADJUSTING INTAKE AND EXHAUST VALVE CLEARANCE

Adjustment should be made while engine is hot.

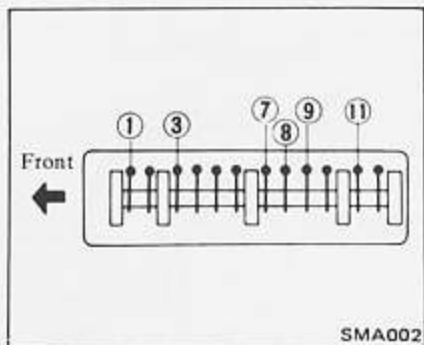
1. Start engine and warm up engine until water temperature indicator points to the middle of gauge, then stop engine.

Adjustment cannot be made while engine is in operation.

2. Remove valve rocker cover.
3. Set so that high point of No. 1 cam lobe points above.



Adjust clearance of half of the valves. Adjust only ①, ③, ⑦, ⑧, ⑨ and ⑪ valves.

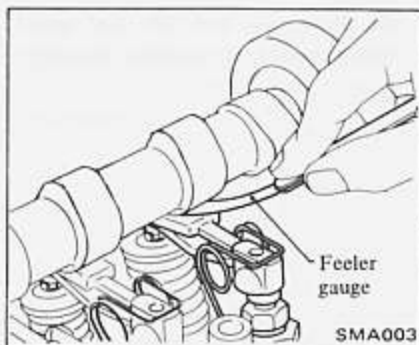


Valve clearance (Hot)

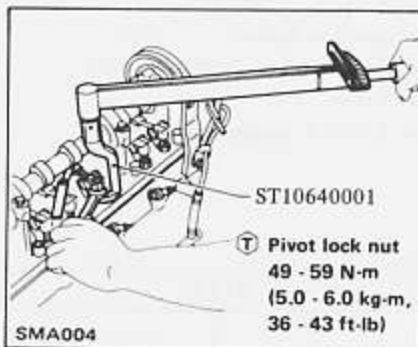
Intake . . . ③ ⑧ ⑪ : 0.25 mm
 (0.010 in)

Exhaust . . . ① ⑦ ⑨ : 0.30 mm
 (0.012 in)

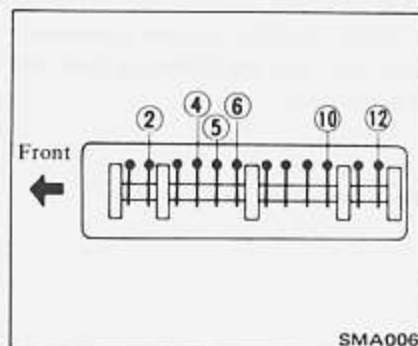
(1) Using feeler gauge, measure clearance between cam lobe and valve rocker.



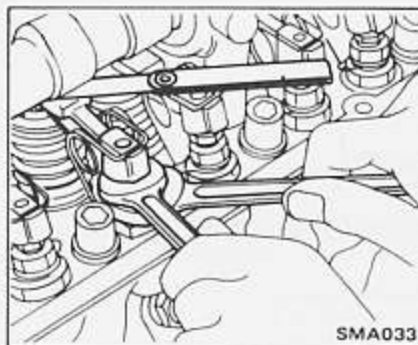
(3) Hold valve rocker pivot and tighten pivot lock nut using Tool.



Adjust ②, ④, ⑤, ⑥, ⑩, and ⑫ valves, using same procedure as for Step 3.



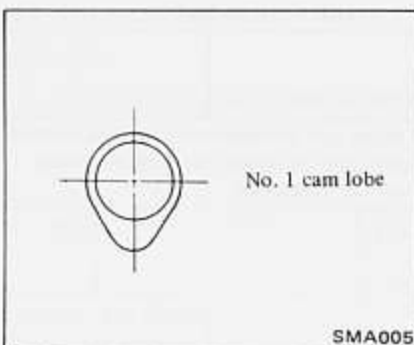
(2) If the clearance is not specified value, loosen pivot lock nut and turn valve rocker pivot to provide proper clearance.



(4) Recheck clearance

Feeler gauge should move with a very slight drag.

4. Turn crankshaft and set so that high point of No. 1 cam lobe points down.



Valve clearance (Hot)

Intake . . . ② ⑤ ⑩ : 0.25 mm
(0.010 in)

Exhaust . . . ④ ⑥ ⑫ : 0.30 mm
(0.012 in)

5. Install valve rocker cover.

CHECKING EXHAUST GAS SENSOR

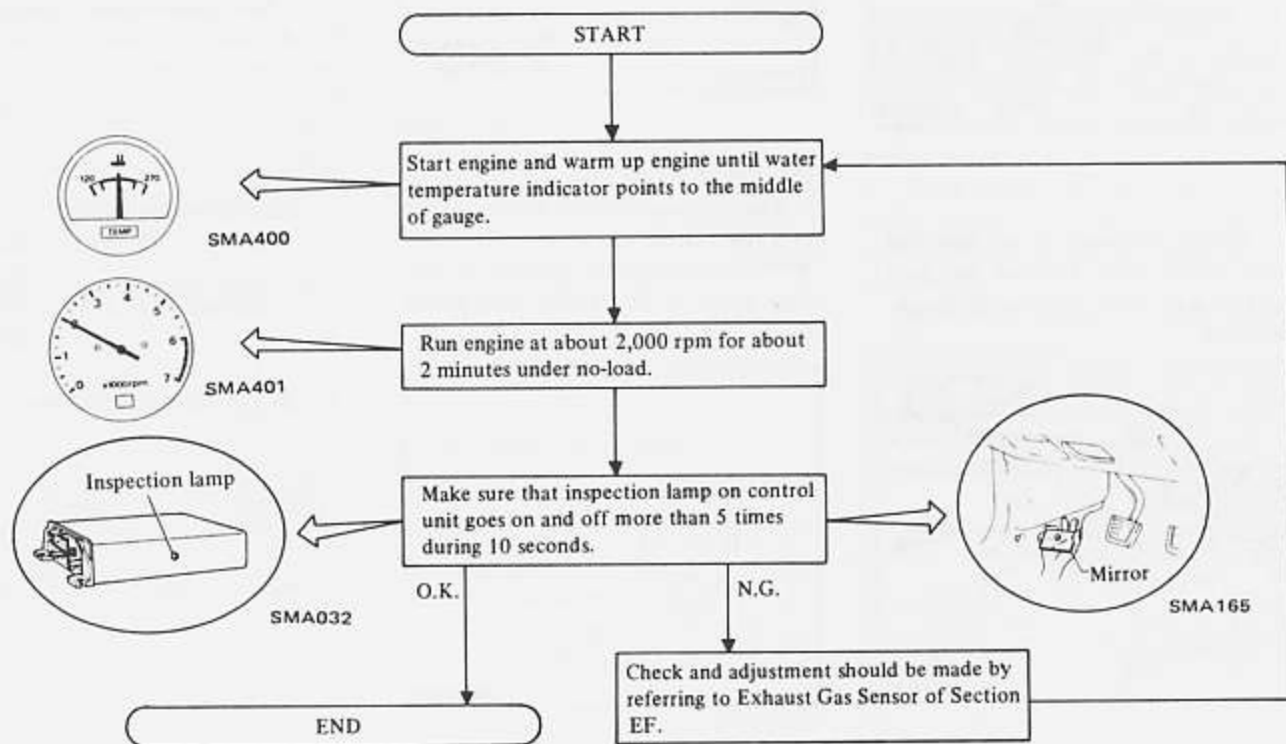
Preparation

When checking exhaust gas sensor, make sure that the following parts are in good order.

- Battery
- Ignition system
- Engine oil and coolant levels
- Fuses
- E.C.C.S. component parts

- E.C.C.S. harness connectors
- Hoses
- Oil filler cap and oil level gauge
- Valve clearance, engine compression

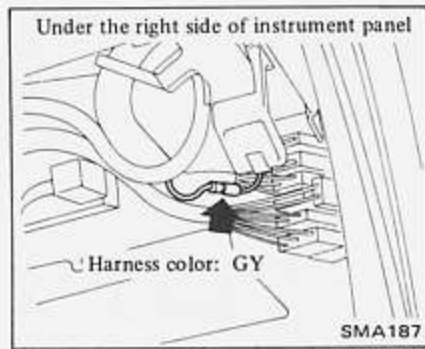
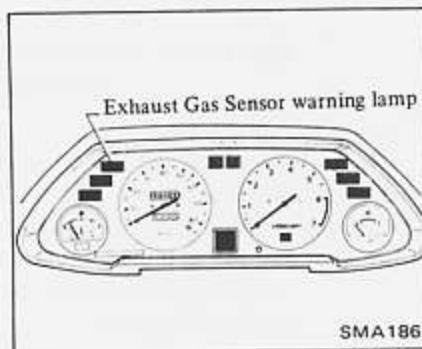
Maintenance procedure



48,000 km (30,000 miles) or 24 Months Service

Exhaust gas sensor should be checked after 48,000 km (30,000 miles) or 24 months of operation.

After car has been operated for 48,000 km (30,000 miles), exhaust gas sensor warning lamp will come on to indicate that sensor should be inspected.



After inspection, disconnect warning lamp harness connector so that warning lamp will not come on thereafter.

If sensor should be checked on the 24th month before 48,000 km (30,000 miles) of operation, also disconnect warning lamp harness connector.

MINOR TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
CANNOT CRANK ENGINE OR SLOW CRANKING	Improper grade oil.	Replace with proper grade oil.
	Partially discharged battery.	Charge battery.
	Malfunctioning battery.	Replace.
	Loose fan belt.	Adjust.
	Trouble in charging system.	Inspect.
	Wiring connection trouble in starting circuit	Correct.
	Malfunctioning ignition switch.	Repair or replace.
	Malfunctioning starting motor.	Repair or replace.

(Trouble-shooting procedures on starting circuit)
Switch on the starting motor with head lights "ON".

When head lights go off or dim considerably,

- a. Check battery.
- b. Check connection and cable.
- c. Check starting motor.

When head lights stay bright,

- a. Check wiring connection between battery and starting motor.
- b. Check ignition switch.
- c. Check starting motor.

ENGINE WILL CRANK NORMALLY BUT WILL NOT START

In this case, the following trouble causes may exist, but in many cases ignition system or fuel system is in trouble.

Ignition system in trouble

Fuel system in trouble

Valve mechanism does not work properly

Low compression

(Trouble-shooting procedure)

Check spark plug first by following procedure.

Disconnect high tension cable from one spark plug and hold it about 10 mm (0.39 in) from the engine metal part and crank the engine.

Good spark occurs.

- a. Check spark plug.
- b. Check ignition timing.
- c. Check fuel system.
- d. Check revolution trigger signal.
- e. Check cylinder compression.

No spark occurs.

Very high current.

Check the current flow in primary circuit.
Inspect primary circuit for short.
Check distributor pick-up coil operation.
Check ignition system.

Low or no current.

Check for loose terminal or disconnection in primary circuit.

Condition	Probable cause	Corrective action
Ignition system in trouble	Refer to EF Section.	Refer to EF Section.
ENGINE CRANKS NORMALLY BUT WILL NOT START		
Fuel system malfunction	Refer to EF Section.	Refer to EF Section.
Low compression	Incorrect spark plug tightening or damaged gasket. Improper grade engine oil or low viscosity. Incorrect valve clearance. Compression leak from valve seat. Sticky valve stem. Weak or damaged valve springs. Compression leak at cylinder head gasket. Sticking or defective piston ring. Worn piston ring or cylinder.	Tighten to normal torque or replace gasket. Replace with proper grade oil. Adjust. Lap valves. Correct or replace valve and valve guide. Replace valve springs. Replace gasket. Replace piston rings. Overhaul engine.
(Trouble-shooting procedure) Pour the engine oil from plug hole, and then measure cylinder compression.		
	Compression increases. Compression does not change.	Trouble in cylinder or piston ring. Compression leaks from valve, cylinder head or head gasket.
UNSTABLE ENGINE IDLING		
Ignition system	Refer to EF Section.	Refer to EF Section.
Engine mechanical system in trouble	Loose manifold and cylinder head bolts. Incorrect valve clearance.	Retighten bolts. Adjust.
Fuel system malfunction	Refer to EF Section.	Refer to EF Section.
HIGH ENGINE IDLE SPEED	Dragged accelerator linkage. Malfunctioning vacuum control valve. Malfunctioning air regulator. Malfunctioning idle speed control system. Throttle valve is opened excessively at idle. Malfunctioning F.I.C.D.	Check and correct accelerator linkage. If engine idling speed rises above 3,500 to 4,000 rpm, the cause may be malfunctioning vacuum control valve. Repair or replace if necessary. Replace. Check idle speed control system. (Refer to EF Section.) Replace throttle chamber. Replace.

Condition	Probable cause	Corrective action
<p>ENGINE POWER NOT UP TO NORMAL</p> <p>Low compression</p> <p>Ignition system in trouble</p>	<p>Refer to EF Section.</p>	<p>Previously mentioned.</p> <p>Refer to EF Section.</p>
<p>ENGINE POWER BELOW NORMAL</p> <p>Fuel system malfunction</p> <p>Air intake system malfunction</p> <p>Overheating</p> <p>Overcooling</p> <p>Others</p>	<p>Refer to EF Section.</p> <p>Refer to EF Section.</p> <p>Insufficient coolant. Loose fan belt. Worn or damaged fan belt. Malfunctioning thermostat. Malfunctioning water pump. Clogged or leaky radiator. Malfunctioning radiator filler cap. Air in cooling system. Improper engine oil grade. Incorrect ignition timing.</p> <p>Malfunctioning thermostat.</p> <p>Improper octane fuel. Improper tire pressure. Dragging brake. Clutch slipping.</p>	<p>Refer to EF Section.</p> <p>Refer to EF Section.</p> <p>Replenish. Adjust fan belt. Replace. Replace. Replace. Flush, repair or replace. Replace. Retighten each part of cooling system. Replace with proper grade oil. Adjust. Replace.</p> <p>Replace with specified octane fuel. Inflate to specified pressure. Adjust. Adjust.</p>
<p>NOISY ENGINE</p> <p>Engine knocking</p> <p>Mechanical knocking Crankshaft bearing knocking.</p>	<p>Overloaded engine. Carbon knocking.</p> <p>Timing knocking. Fuel knocking. Preignition (misusing of spark plug).</p> <p>This strong dull noise increases when engine is accelerated. To locate the place, cause a misfire in each cylinder. If the noise stops by the misfire, this cylinder generates the noise.</p>	<p>Use right gear in driving. Disassemble cylinder head and remove carbon. Adjust ignition timing. Use specified octane fuel. Use specified spark plug.</p> <p>This is caused by worn or damaged bearings, or unevenly worn crankshaft. Renew bearings and adjust or change crankshaft. Check lubrication system.</p>

Condition	Probable cause	Corrective action
Connecting rod bearing knocking.	This is a little higher-pitched noise than the crankshaft knocking, and also increases when engine is accelerated. Cause a misfire in each cylinder and if the noise diminishes almost completely, this crankshaft bearing generates the noise.	Same as the case of crankshaft bearings.
Piston and cylinder noise.	When you hear an overlapping metallic noise which increases its magnitude with the engine revolution and which decreases as engine is warmed up, this noise is caused by piston and cylinder. To locate the place, cause a misfire in each cylinder.	This may cause an abnormal wearing of cylinder and lower compression which in turn will cause a lower out-put power and excessive oil consumption. Overhaul engine.
Piston pin noise.	This noise is heard at each highest and lowest dead end of piston. To locate the place, cause a misfire in each cylinder.	This may cause a wear on piston pin, or piston pin hole. Renew piston and piston pin assembly.
Water pump noise.	This noise may be caused by worn or damaged bearings, or by the uneven surface of sliding parts.	Replace water pump with a new one.
Others.	An improper adjustment of valve clearance. An excessive end-play on crankshaft. This noise will be heard when clutch is disengaged. Wear on clutch pilot bushing. This noise will be heard when clutch is disengaged.	Adjust. Disassemble engine and renew main bearing. Renew bushing and adjust drive shaft.
ABNORMAL COMBUSTION (backfire, after fire run-on etc.) Improper ignition timing Fuel system malfunction Defective cylinder head, etc. Others	Refer to EF Section. Refer to EF Section. Improperly adjusted valve clearance. Excess carbon in combustion chamber. Damaged valve spring (backfire, after fire).	Refer to EF Section. Refer to EF Section. Adjust. Remove head and get rid of carbon. Replace it with a new one. Check for loose vacuum hoses. Replace if necessary.
EXCESSIVE OIL CONSUMPTION Oil leakage	Loose oil drain plug. Loose or damaged oil pan gasket. Loose or damaged chain cover gasket.	Tighten it. Renew gasket or tighten it. Renew gasket or tighten it.

Condition	Probable cause	Corrective action
<p>Oil leakage</p> <p>Excessive oil consumption</p> <p>Others</p>	<p>Damaged oil seal in front and rear of crankshaft.</p> <p>Loosen or damaged rocker cover gasket.</p> <p>Improper tightening of oil filter.</p> <p>Loosen or damaged oil pressure switch.</p> <p>Cylinder and piston wear.</p> <p>Improper location of piston ring or reversely assembled piston ring.</p> <p>Damaged piston rings.</p> <p>Worn piston ring groove and ring.</p> <p>Fatigue of valve oil seal lip.</p> <p>Worn valve stem.</p> <p>Inadequate quality of engine oil.</p> <p>Engine overheating.</p>	<p>Renew oil seal.</p> <p>Renew gasket or tighten it (but not too much).</p> <p>Renew gasket and tighten it with the proper torque.</p> <p>Renew oil pressure switch or tighten it.</p> <p>Overhaul cylinder and renew piston.</p> <p>Remount piston rings.</p> <p>Renew rings.</p> <p>Repair or renew piston and cylinder.</p> <p>Renew piston and piston ring.</p> <p>Replace seal lip with a new one.</p> <p>Renew valve or guide.</p> <p>Use the designated oil.</p> <p>Previously mentioned.</p>
<p>POOL FUEL ECONOMY</p> <p>Ignition system</p> <p>See the explanation of the power decrease</p> <p>Others</p> <p>Emission control system</p> <p>Fuel system malfunction</p>	<p>Refer to EF Section.</p>	<p>Refer to EF Section.</p>
<p>TROUBLE IN OTHER FUNCTIONS</p> <p>Decreased oil pressure</p>	<p>Inadequate oil quality.</p> <p>Overheating.</p> <p>Malfunctioning oil pump regulator valve.</p> <p>Functional deterioration of oil pump.</p> <p>Blocked oil filter.</p> <p>Increased clearance in various sliding parts.</p> <p>Blocked oil strainer.</p> <p>Malfunctioning oil gauge pressure switch.</p>	<p>Use the designated oil.</p> <p>Previously mentioned.</p> <p>Disassemble oil pump and repair or renew it.</p> <p>Repair or replace it with a new one.</p> <p>Renew it.</p> <p>Disassemble and replace the worn parts with new ones.</p> <p>Clean it.</p> <p>Replace it with a new one.</p>

Minor Trouble Diagnoses and Corrections – **MAINTENANCE**

Condition	Probable cause	Corrective action
Excessive wear on the sliding parts	Oil pressure decreases. Damaged quality or contamination of oil. Air leakage from air intake duct. Damaged air cleaner. Overheating or overcooling. Improper fuel mixture.	Previously mentioned. Exchange the oil with proper one and change element. Repair or replace. Change element. Previously mentioned. Check the fuel system.
Scuffing of sliding parts	Decrease of oil pressure. Insufficient clearances. Overheating. Improper fuel mixture.	Previously mentioned. Readjust to the designated clearances. Previously mentioned. Check the fuel system.

CHASSIS AND BODY MAINTENANCE

FRONT AXLE AND FRONT SUSPENSION

CHECKING WHEEL ALIGNMENT

Before checking front wheel alignment, be sure to make a preliminary inspection of all front end parts.

- Tire pressure
- Wheel bearing axial play
- Suspension ball joint
- Steering gear housing looseness at frame
- Steering linkage and connections
- Shock absorber operation
- Tighten each front axle and suspension parts.
- Measure car height (Unladen).
- Repair or replace the damaged portion or parts.

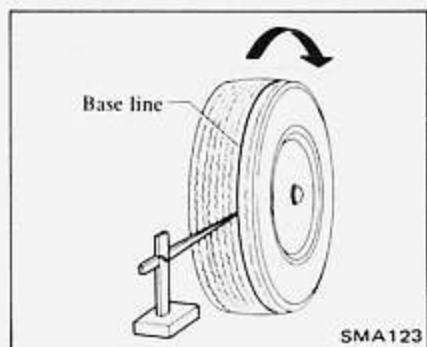
“Unladen”

- Fuel tank, radiator and engine oil tank all full.
- Spare tire, jack, hand tools, mats in position.
- All tires inflated to specified pressure.
- All accumulation of mud, dirt and road deposits removed from chassis and underbody.

Toe-in

Measure toe-in, and make necessary adjustments. Use the following procedure when making adjustments.

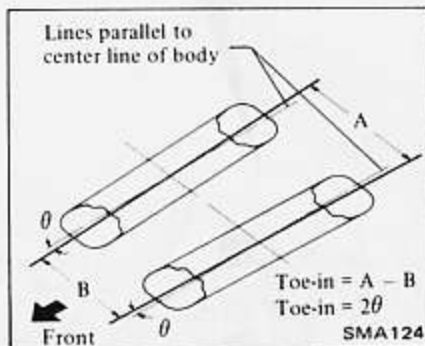
1. Raise front of car and mark a base line across the tread of left and right wheels.



2. Set wheels in a straight-ahead position, and then lower front of car.

After lowering front of car, move it up and down to eliminate friction.

3. Measure toe-in and make necessary adjustments.



Toe-in (Unladen):

1 - 3 mm (0.04 - 0.12 in)

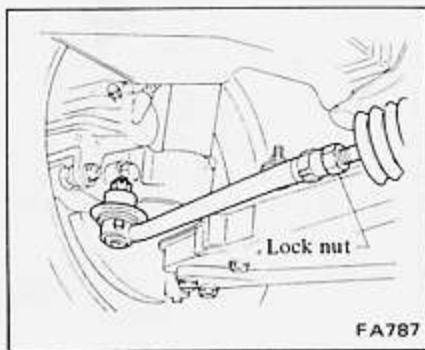
6' - 16' (On both sides)

Side slip (Reference data)

Out 2 mm - In 4 mm/m

(Out 0.024 in - In 0.048 in/ft)

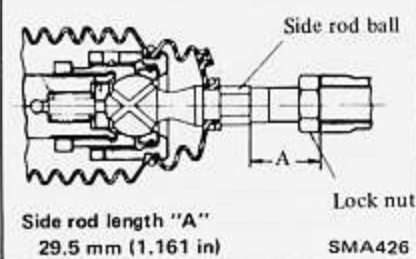
Toe-in can be adjusted by varying the length of steering side rods.



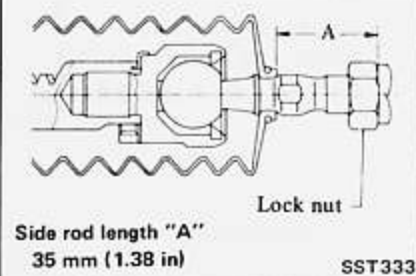
- a. Loosen lock nuts and turn left and right side rod bars equally.
- b. The side rod bars have right-handed threads, and should be turned as viewed from outside, clockwise to increase, or counterclockwise to decrease, toe-in.

- If side rods have been disassembled, set side rod length to specified value “A” before reassembling.
- Make sure that side rod bars are screwed into side rods **more than 25 mm (0.98 in)**.

Manual steering models



Power steering models

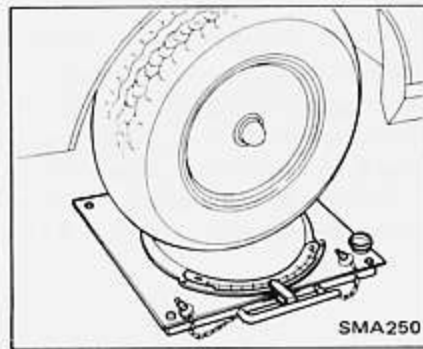


After correct toe-in is obtained, tighten side rod lock nuts.

ⓘ: 78 - 98 N·m
(8 - 10 kg·m, 58 - 72 ft·lb)

Front wheel turning angle

1. Set wheels in straight ahead position and then move car forward until front wheels rest on turning radius gauge properly.



2. Remove stopper pin of turning radius gauge and then rotate steering wheel to the right and left; measure turning angle on wheel.

Front wheel turning angle

- Toe-out turns
(When inner wheel is 20°)
 - Outer wheel
RP15L: 18.7°
IPRP15L: 18.7°
- Full turns
RP15L:
 - Inner wheel 33-1/2° - 37-1/2°
 - Outer wheel 29° - 33°IPRP15L:
 - Inner wheel 33-1/2° - 37-1/2°
 - Outer wheel 29° - 33°

If turning angle does not satisfy specifications, check rack stroke by referring to Section ST.

- Rack stroke (each side)
- RP15L: 66.4 mm (2.614 in)
 - IPRP15L: 66.4 mm (2.614 in)

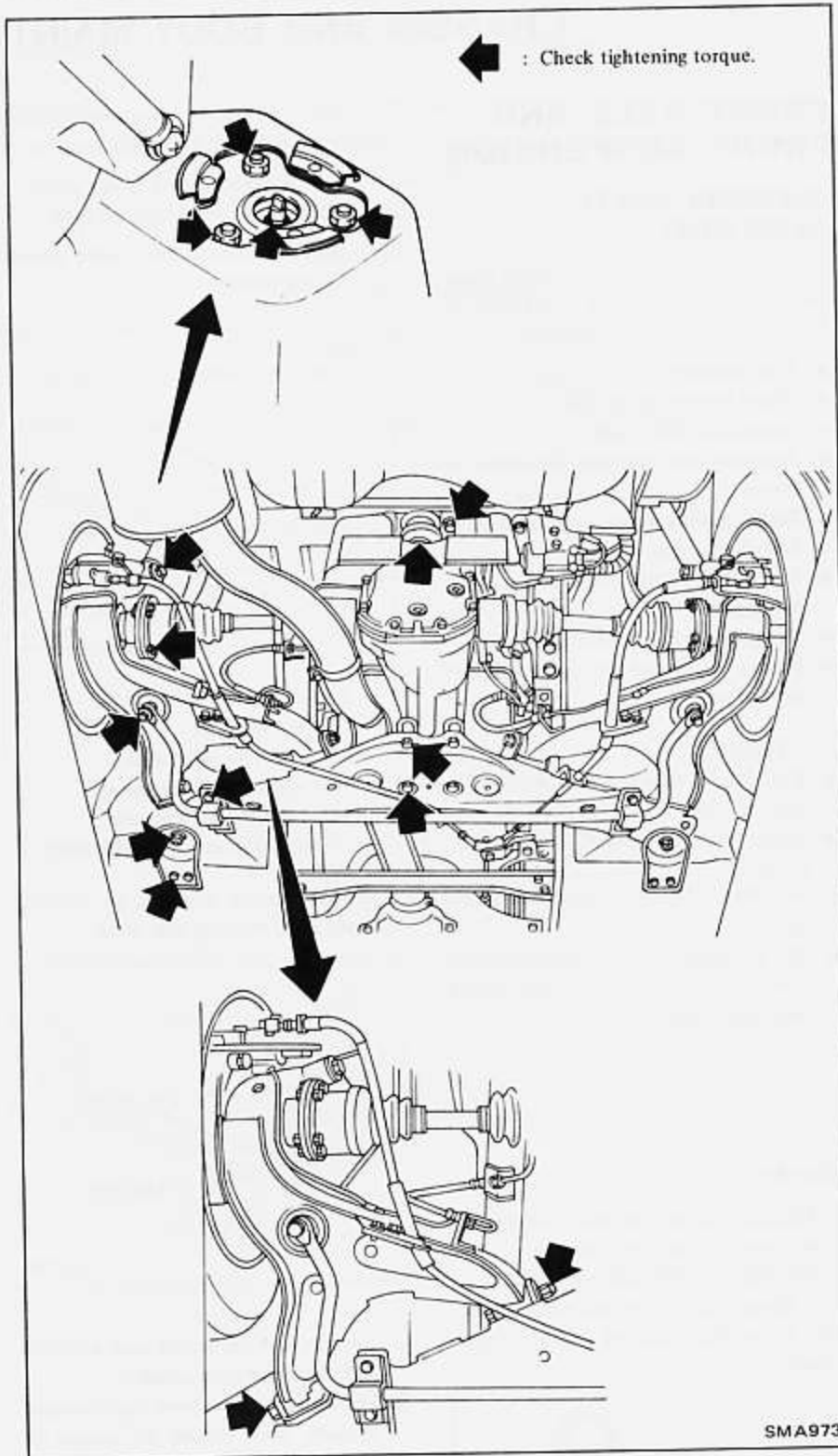
REAR AXLE AND REAR SUSPENSION

CHECKING REAR AXLE AND SUSPENSION PARTS

Check rear axle and suspension parts for looseness, wear or damage.

Retighten all loose nuts and bolts to the specified torque. Refer to Section RA for tightening torque.

Replace all worn parts as instructed under Rear Suspension (Section RA).



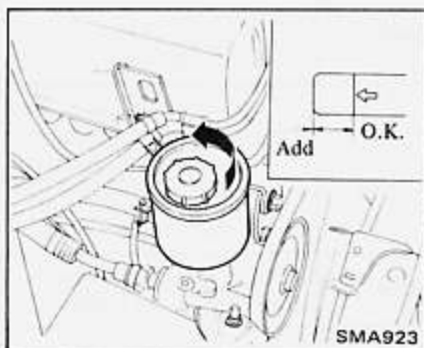
SMA973

STEERING SYSTEM

CHECKING ZF POWER STEERING FLUID AND LINES

1. Check the fluid level in reservoir by observing the dipstick when the fluid is cold. Add fluid as necessary to bring the level into the proper range on dipstick.

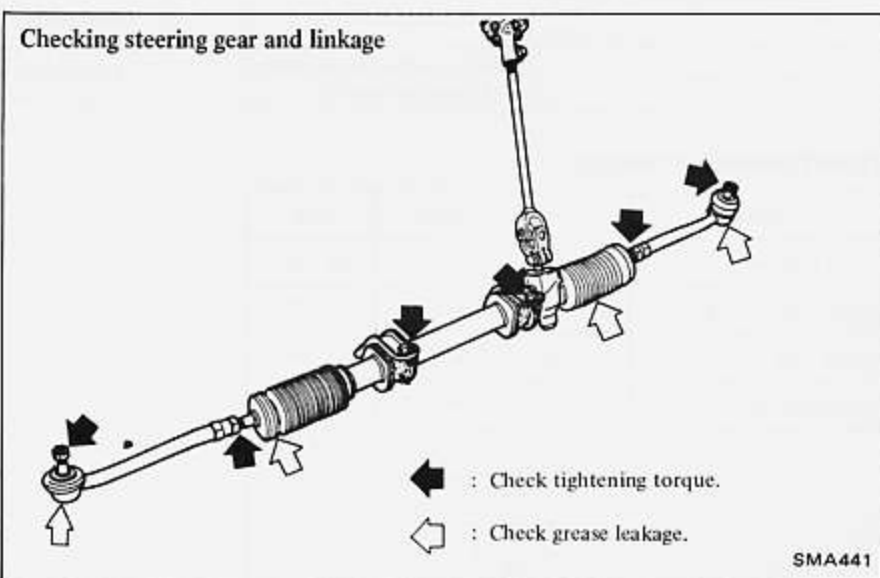
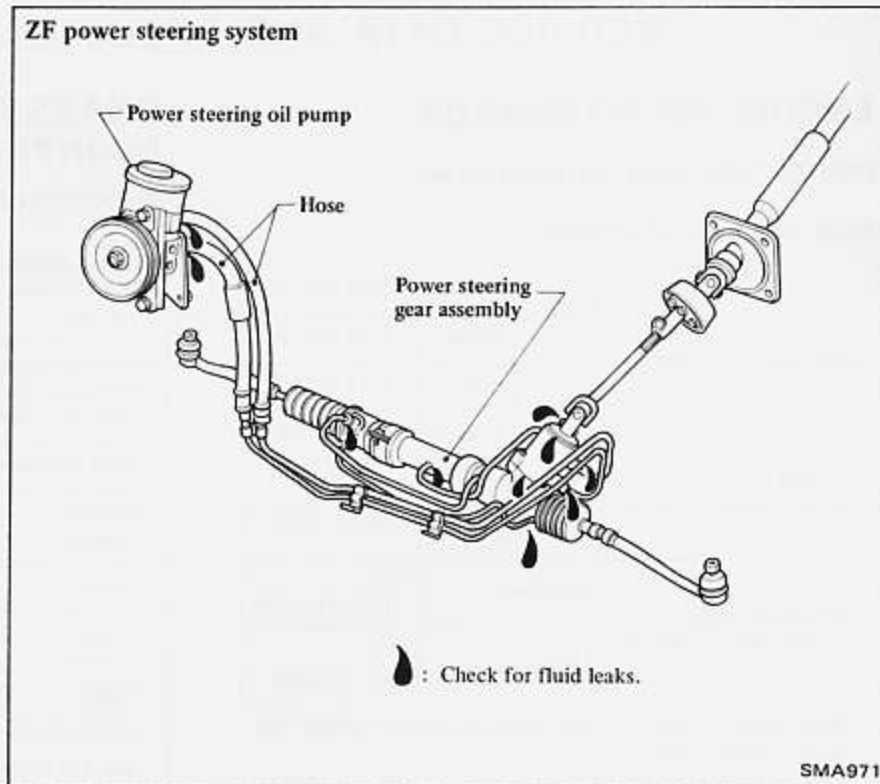
CAUTION:
Do not overfill.



2. Inspect line condition and check for leaks.

CHECKING STEERING GEAR AND LINKAGE

- Check parts for looseness, wear or damage. Retighten if necessary. Refer to Section ST for tightening torque.
- Check ball joints for grease leakage.
- Check for any missing parts (cotter pins, washer, etc.).



SERVICE DATA AND SPECIFICATIONS (S.D.S.)

ENGINE MAINTENANCE INSPECTION AND ADJUSTMENT

Basic mechanical system

Valve clearance	Hot	Intake	0.25 (0.010)
		Exhaust	0.30 (0.012)
	Cold*	Intake	0.17 (0.007)
		Exhaust	0.24 (0.009)
Drive belt deflection [Applied pushing force 98 N (10 kg, 22 lb)]			8 - 12 (0.31 - 0.47)
Compression pressure kPa (kg/cm ² , psi)/rpm	Standard	981 (10.0, 142)/350	
	Minimum	686 (7.0, 100)350	

*: These values are measured when engine is cold and ambient temperature is 20°C (68°F).

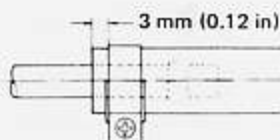
After checking valve clearance while engine is cold, also check them when engine is hot to see if they remain within the specified range. If they do not, readjust them.

Ignition and fuel system

Spark plug	
Standard type	BPR6ES-11
Cold type	BPR7ES-11
Gap	mm (in) 1.0 - 1.1 (0.039 - 0.043)
Ignition timing and idle speed	
Automatic transmission models (in "D" position)	degree/rpm 20 ± 3° B.T.D.C./650 ± 50
"CO"% at idle speed	Idle mixture screw is preset and sealed at factory.

TIGHTENING TORQUE

Unit	N-m	kg-m	ft-lb
Pivot lock nut	49 - 59	5.0 - 6.0	36 - 43
Oil pan drain plug	20 - 29	2.0 - 3.0	14 - 22
Spark plug	15 - 20	1.5 - 2.0	11 - 14
Fuel hose clamp	1.0 - 1.5	0.10 - 0.15	0.7 - 1.1



Fuel hose clamping position.

EF336A

CHASSIS AND BODY MAINTENANCE

INSPECTION AND ADJUSTMENT

Front axle and front suspension

Axial play	mm (in)	0 (0)	
Wheel bearing preload (As measured at wheel hub bolt)	With new parts	N (kg, lb)	Less than 17.7 (1.8, 4.0)
	With used parts	N (kg, lb)	Less than 6.9 (0.7, 1.5)
Wheel alignment (Unladen)			
Camber		-35' - 55'	
Caster		4°10' - 5°40'	
Kingpin inclination		8°35' - 10°5'	
Toe-in		1 - 3 mm (0.04 - 0.12 in) 6' - 16' (On both sides)	
Side slip (Reference data)		Out 2 mm - In 4 mm/m (Out 0.024 in - In 0.048 in/ft)	
		Power steering models	Manual steering models
Standard side rod length "A"	mm (in)	35 (1.38)	29.5 (1.161)
Front wheel turning angle			
Toe-out turns (When inner wheel is 20°)		18.7°	18.7°
Outer wheel			
Full turns*			
Inner wheel		33-1/2° - 37-1/2°	33-1/2° - 37-1/2°
Outer wheel		29° - 33°	29° - 33°

* On power steering models, wheel turning force (at circumference of steering wheel) of 98 - 147 N (10 - 15 kg, 22 - 33 lb) with engine at idle.

Wheel and tire

Unit: psi (kPa)

Recommended cold tire inflation pressure		
Tire size	Car speed	
	Under 160 km/h (100 MPH)	Over 160 km/h (100 MPH)
P205/60R15	28 (200)	32 (230)
Spare tire C78-14	Do not use in excess of 80 km/h (50 MPH).	
	28 (200)	

Tire pressure should be checked when tires are COLD.

Wheel rim lateral and radial runout	mm (in)	Less than 1.0 (0.039)*1 0.5 (0.020)*2
Difference between right and left lateral runout	mm (in)	Less than 0.5 (0.020)*1 0.2 (0.008)*2
Wheel balance (Maximum allowable unbalance at rim flange)	gr (oz)	10 (0.35)
Tire balancing weight	gr (oz)	10 - 60 (0.35 - 2.12) Spacing 10 (0.35)

*1: Steel wheel *2: Aluminum wheel