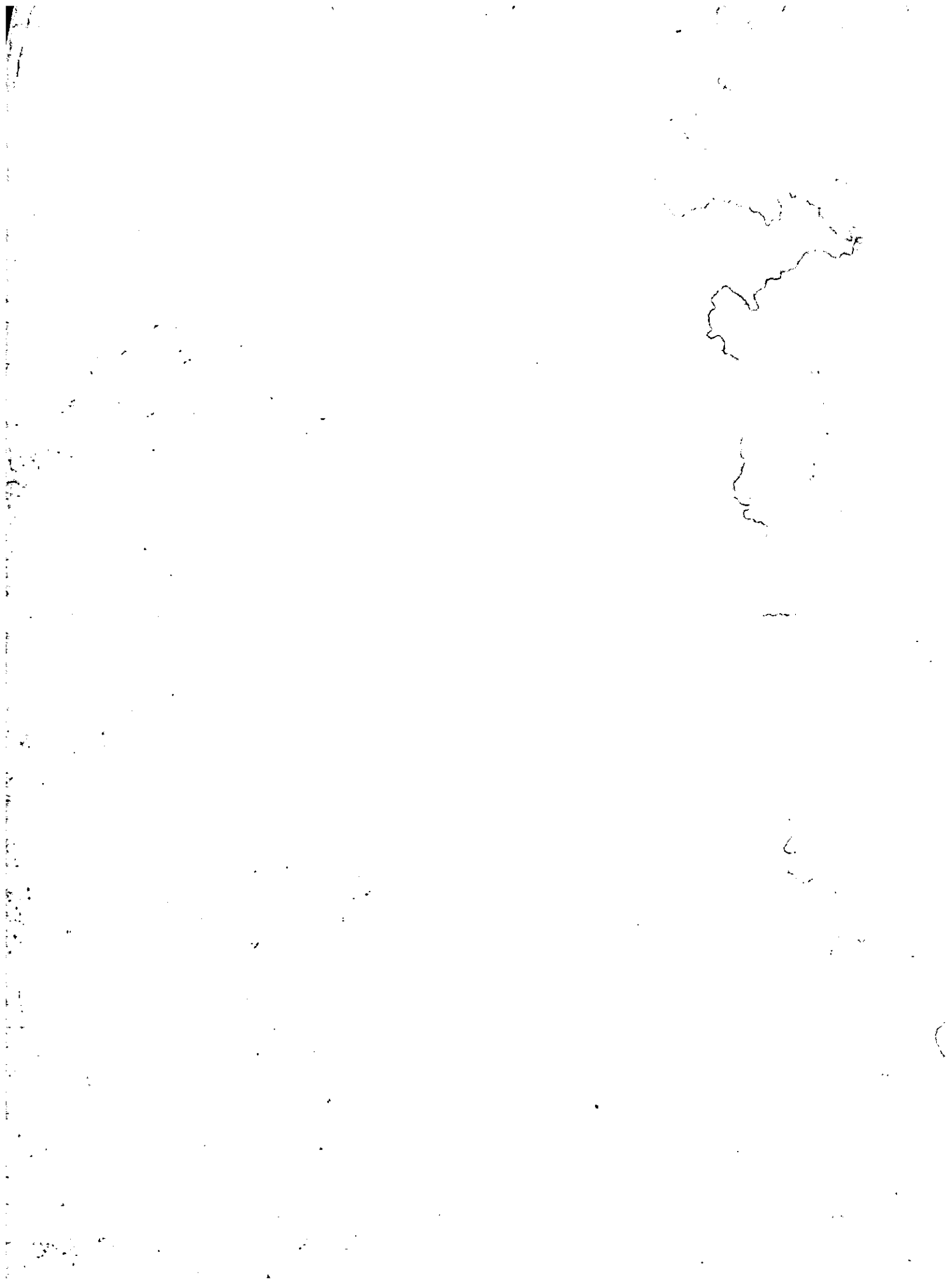


MANUAL

DATSUN SKYLINE

MODEL C-210 SERIES

DATSUN



DATSUN

SERVICE MANUAL

*Model
C210 Series*



NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

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FOREWORD

This service manual has been prepared for the purpose of assisting service personnel of our distributors and dealers in providing effective service and maintenance of the model C210 series.

Since proper maintenance and service are absolutely essential in satisfying our customers, this manual should be kept in a handy place for ready reference and should be carefully studied.

This manual includes procedures for maintenance adjustments, minor service operations, removal and installation, and for disassembly and assembly of components.

Some of these service operations require the use of Special Tools especially designed for effective performance of service operations. The special tools are presented at the end of the each section.

As you read through the maintenance procedures in this service manual, you will occasionally come across paragraphs headed NOTE, CAUTION or WARNING. A NOTE is supplemental information that is important to a particular procedure. CAUTION and WARNING warn of steps that must be followed to prevent damage to some part of the car and/or personal injury.

The Quick Reference Index on the first page enables the user to quickly locate the desired section. At the beginning of each individual section is a table of contents, which gives the page number on which each major subject begins.

All parts in this manual conform to the PARTS CATALOG Model C210, and only the genuine service parts listed in this PARTS CATALOG must be used for replacements.

All information, illustrations and specifications contained in this manual are based on the product information available as of October 1977.

It should be emphasized that those who use this manual are responsible for revising the contents according to the SERVICE JOURNAL, SUPPLEMENT of SERVICE MANUAL and SERVICE DATA AND SPECIFICATIONS issued by the factory, which carry the latest factory approved service methods.

Rights for alteration at any time of specifications and methods are reserved.

Liability for any personal injury or property damage occasioned by the use of this service manual in effecting maintenance or repair of the car is in no way assumed by Nissan Motor Co., Ltd.

Accordingly, anyone using a service procedure or tool which is not specifically recommended by Nissan must first completely satisfy himself that neither his safety nor the car's safety will be jeopardized by the service method selected.

NISSAN MOTOR CO., LTD.

TOKYO, JAPAN

SECTION GI

GI

GENERAL INFORMATION**CONTENTS**

MODEL VARIATION	GI-2	RECOMMENDED LUBRICANTS	GI-4
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CHASSIS NUMBER	GI-2	VISCOSITY NUMBER	GI-4
ENGINE SERIAL NUMBER	GI-2	LIFTING POINTS AND TOWING	GI-5
COLOR CODE NUMBER LABEL	GI-3	PANTOGRAPH JACK	GI-5
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MODEL VARIATION

	Engine	Wheelbase	Model	Transmission	Differential carrier	
					Model	Gear ratio
Sedan	L24S	Long wheelbase	MGC210VFM MGC210VAM	FS5W71B 3N71B	R180	3.900
Hardtop			KMGC210VFM KMGC210VAM	FS5W71B 3N71B		

L24S: L24 engine with single carburetor

Prefix and Suffix Designations

K M G C210 V F M

K : Hardtop

□ : Sedan

M : L24 engine

G : Long wheelbase

M : For Australia

F : 5-speed manual transmission

A : Automatic transmission

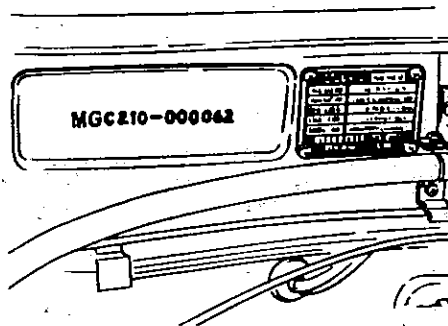
V : Grand Touring

□ : means no indication.

IDENTIFICATION NUMBER

The unit and car numbers are stamped and registered at the factory.

The car and engine identification numbers are used on legal documents. These numbers are used for factory communications such as Technical Reports, Warranty Claims, Service Journals and other information.



LC014

Fig. G1-1 Identification Plate and Chassis Number Location

ENGINE SERIAL NUMBER

The engine serial number is stamped on the right-hand side of the cylinder block. The number is broken down as shown in the following chart according to the type of the engine.

Engine model	Engine number
L24	L24-xxxxxx

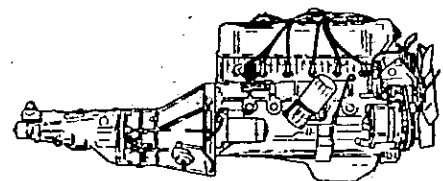
CAR IDENTIFICATION PLATE

The car identification plate is located on the center of the cowl top in the engine compartment.

CHASSIS NUMBER

The chassis number is stamped on the cowl top in the engine compartment and is broken down as shown in the following figure.

Model	Chassis number
Sedan	MGC210-xxxxxx
Hardtop	KMGC210-xxxxxx



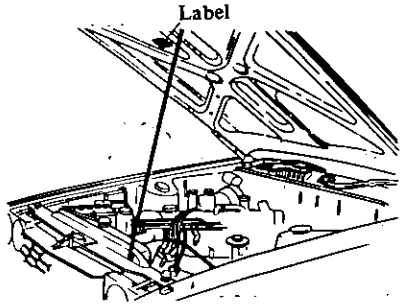
G1329

Fig. G1-2 Engine Serial Number Location

General Information

COLOR CODE NUMBER LABEL

The color code number label is stuck on the inner side of the hood as shown in the following figure.

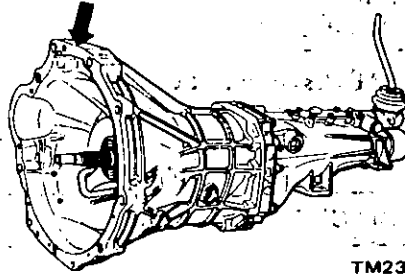


G1387

Fig. G1-3 Color Code Number Label Location

MANUAL TRANSMISSION NUMBER

The transmission serial number is stamped on the front upper face of the transmission case.

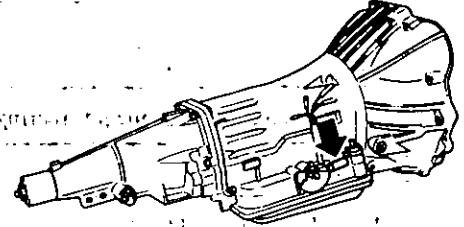


TM235

Fig. G1-4 Manual Transmission Number Location

AUTOMATIC TRANSMISSION NUMBER

The plate is attached to the right side of the transmission case as shown in the following figure.



AT344

Fig. G1-5 Automatic Transmission Number Location

APPROXIMATE REFILL CAPACITIES

	Liter	Imp measure
Fuel tank		
Sedan and Hardtop	60	13 1/4 gal
Cooling system		
Without heater	8.5	7 1/2 qt
With heater	9.5	8 3/8 qt
Engine oil		
Without filter	5.0	4 3/8 qt
With filter	5.5	4 3/8 qt
Transmission		
5-speed Manual	2.0	3 1/2 pt
Automatic	5.5	4 3/8 qt
Differential carrier (R180)	1.0	1 1/4 pt
Manual steering gear	0.29	1/2 pt
Power steering oil	1.1	1 qt
Air conditioning system		
Refrigerant	1.2 (kg)	2.6 (lb)
Compressor oil	0.25	8.8 fl oz

RECOMMENDED FUEL

Use a proper grade gasoline of above 88 octane rating.

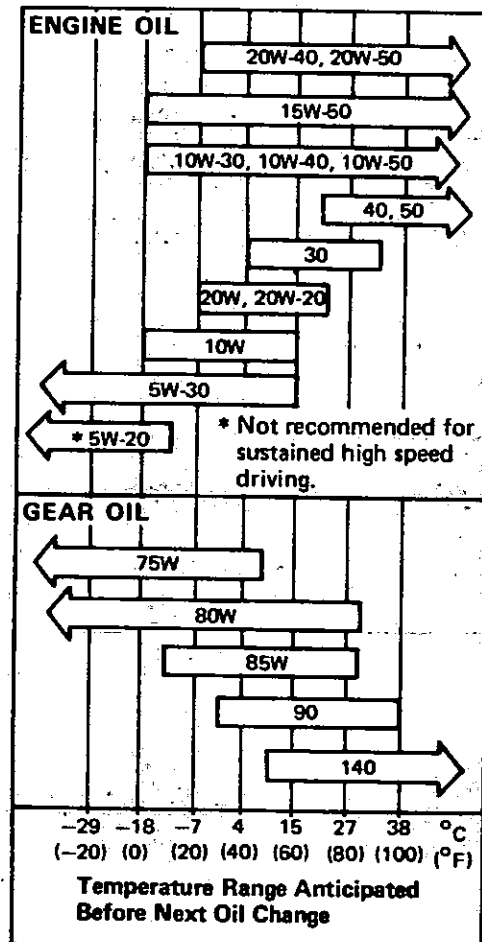
General Information

RECOMMENDED LUBRICANTS

RECOMMENDED LUBRICANTS

Item		Specifications	Remarks
Engine oil	Gasoline	SAE classification SD or SE (MIL-L-2104B)	Refer to Recommended SAE Viscosity Chart
	Diesel	SAE classification CC or CD (MIL-L-46152 or MIL-L-2104C)	
Gear oil	Manual transmission and steering	API GL-4 (MIL-L-2105)	
	Differential	API GL-5 (MIL-L-2105B)	
Automatic T/M and power steering fluid		Type DEXRON	
Multi-purpose grease		N.L.G.I. 2	Lithium soap base
Brake and clutch fluid		DOT 3 (F.M.V.S.S. No. 116)	F.M.V.S.S.: Federal Motor Vehicle Safety Standard
Anti-freeze			Permanent anti-freeze (Ethylene glycol base)

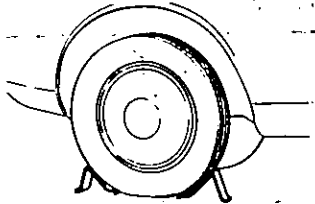
RECOMMENDED SAE VISCOSITY NUMBER



LIFTING POINTS AND TOWING

PANTOGRAPH JACK

Place wheel chocks at both front and back of the wheel diagonally opposite the jack position.



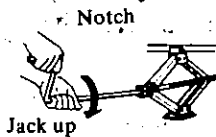
G1085

Fig. G1-6 Wheel Chocks

Apply the pantograph jack furnished with the car to the position indicated below in a safe manner.

WARNING:

- a. Never get under the car while it is supported only by the jack. Always use safety stands to support frame when you have to get under the car.
- b. Block the wheels diagonally with wheel chocks.



TR004

Fig. G1-7 Jack Up Points

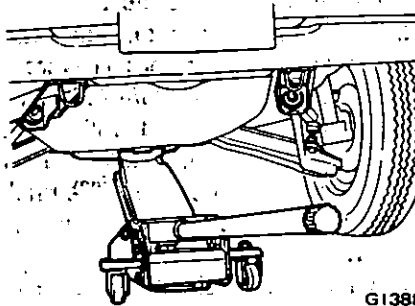
GARAGE JACK AND SAFETY STAND

WARNING:

When carrying out operations with the garage jack, be sure to support the car with safety stands.

FRONT SIDE

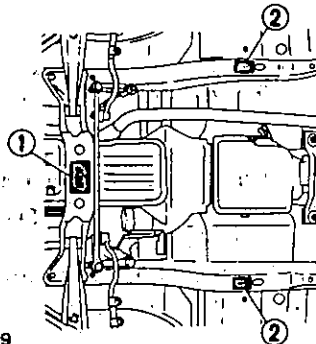
1. When jacking up the front of the car, place the chocks behind the rear wheels to hold them.
2. Apply the garage jack under the front suspension member. Be sure not to lift up the engine oil pan located just behind the suspension member.



G1388

Fig. G1-8 Front Jack Up Point

3. Jack up the car gently just high enough to place the safety stands under both the side members. Place the stands at the position indicated in Fig. G1-9.



G1359

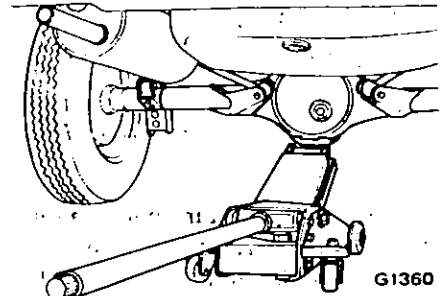
- 1 Front jack up point
- 2 Front supporting point

Fig. G1-9 Front Jack Up and Supporting Points

4. Release the jack slowly.

REAR SIDE

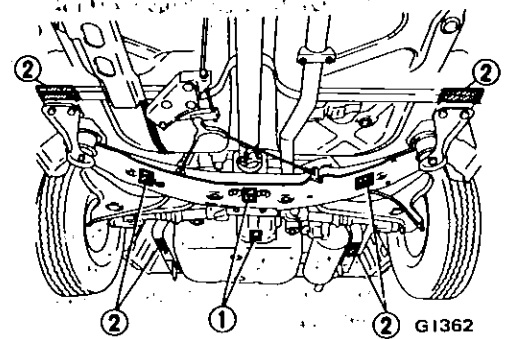
1. When jacking up the rear of the car, place the chocks at the front side of the front wheels to hold them.
2. Apply the garage jack under the suspension member.



G1360

Fig. G1-10 Rear Jack Up Point

3. Jack up the car gently just high enough to place the safety stands under the rear suspension member or the side member. Place the stands at the positions indicated below.



G1362

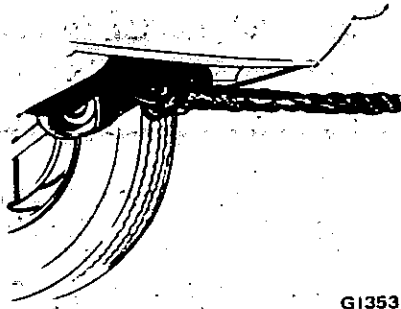
- 1 Rear jack up point
- 2 Rear supporting point

Fig. G1-11 Rear Jack Up and Supporting Points

4. Release the jack slowly.

TOWING

The towing hook is located on the torsion brackets on each side.

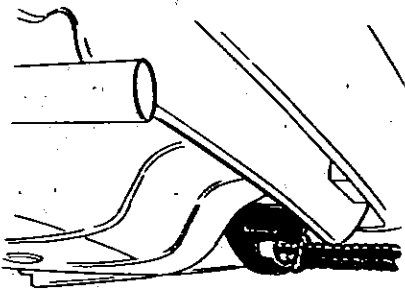


G1353

Fig. GI-12 Front Towing Hook

To tow another car, connect a rope to the right side rear towing hook.

The left side rear hook is installed for the tie-down use only.



G1354

Fig. GI-13 Rear Towing Hook

Special Tools play very important role in the maintenance of cars. These are essential to the safe, accurate and speedy servicing.

The working times listed in the column under FLAT RATE TIME in FLAT RATE SCHEDULE are computed based on the use of Special Tools.

CAUTION:

- a. Before towing, make sure that the transmission, axles, steering system and power train are in good order. If any unit is damaged, a dolly must be used.
- b. If the transmission is inoperative, tow the car with the rear wheels off the ground, or with the propeller shaft removed.
- c. When the car is towed with its front wheels on the ground, secure the steering wheel in a straight ahead position with the ignition key turned in "OFF" position.
- d. When towing an automatic transmission model on its rear wheels, do not exceed 30 km/h (20 MPH) and a distance of 10 km (6 miles).
- e. Release the parking brake and set the gearshift lever in "Neutral" position before starting to tow the car.
- f. A towing rope should not be connected to the tie-down hook or any other positions except those described above.
- g. Do not take up slack in the rope too quickly.
- h. Always pull the rope in a straight direction with respect to the hook. Do not apply force to the hook in side direction.

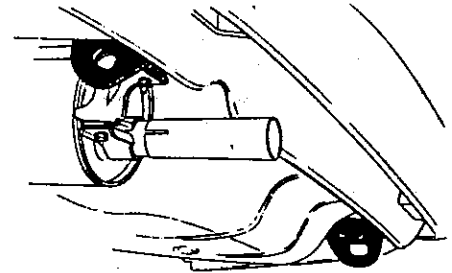
TIE-DOWN

Front tie-down hooks are located on both tension rod brackets.

Rear tie-down hooks are installed on both sides of the floor.

CAUTION:

Do not tow car with left hand tie-down hook.



G1363

Fig. GI-14 Rear Tie-down Hook

SPECIAL TOOL

The identification code of maintenance tools is made up of 2 alphabetical letters and 8-digital figures.

The heading two letters roughly classify tools or equipment as:

ST00000000:	Special Tool
KV00000000:	Special Tool
EM00000000:	Engine Overhauling Machine
GG00000000:	General Gauge
LM00000000:	Garage Tool
HT00000000:	Hand Tool

Refer to Service Bulletin DATSUN 180K & 240K GT for Special Tool List and further information on Special Tools.

SECTION ET

ET

ENGINE TUNE-UP

CONTENTS

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ADJUSTING INTAKE AND EXHAUST VALVE CLEARANCES	ET- 2	EMISSION CONTROL SYSTEM	ET- 8
CHECKING AND ADJUSTING DRIVE BELTS	ET- 2	CHECKING VACUUM FITTINGS, HOSES AND CONNECTIONS	ET- 8
RETIGHTENING CYLINDER HEAD BOLTS, MANIFOLD NUTS AND CARBURETOR SECURING NUTS	ET- 3	REPLACING P.C.V. VALVE AND FILTER	ET- 8
CHANGING ENGINE OIL	ET- 3	CHECKING VENTILATION HOSES	ET- 8
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ENGINE TUNE-UP

DESCRIPTION

To keep the engine in top running condition at all times, proper main-

tenance (tune-up) is necessary. Moreover, it is important that the engine be tuned-up in accordance with the maintenance schedule. The results of proper

engine maintenance are, among others, minimum exhaust emissions. This section describes proper maintenance procedures.

BASIC MECHANICAL SYSTEM

ADJUSTING INTAKE AND EXHAUST VALVE CLEARANCES

Valve clearance adjustment cannot be made while engine is in operation.

To adjust, proceed as follows:

1. Start engine and warm up engine sufficiently then stop engine.
2. Rotate crankshaft to bring No. 1 cylinder to top dead center of its compression stroke.
3. Remove valve rocker cover.

Loosen pivot locking nut and turn pivot screw until specified clearance is obtained while engine is hot.

Using service tool, tighten pivot locking nut securely after adjustment, and recheck clearance.

4. Order of valve clearance adjustments is as follows.

All valves can be adjusted by rotating crankshaft four complete turns.

Note: When turning crankshaft with starter, remove high tension wire from ignition coil, then turn it.

- a. Adjust valve clearances ③, ⑦ and

- ⑪ with cam lobe ① set at extreme upward position.
- b. Adjust valve clearances ⑤, ⑩ and ⑫ with cam lobe ④ set at extreme upward position.
- c. Adjust valve clearance ⑥ with cam lobe ② set at extreme upward position.
- d. Adjust valve clearance ⑨ with cam lobe ⑧ set at extreme upward position.

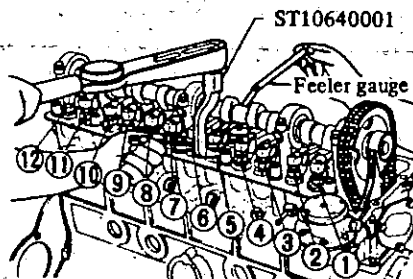
Note: Numbers in circle agree with those in Figure ET-1.

Tightening torque:

Pivot lock nut:

49 to 59 N·m

(5.0 to 6.0 kg·m, 36 to 43 ft·lb)



ET074

Fig. ET-1 Adjusting valve clearance

Valve clearance

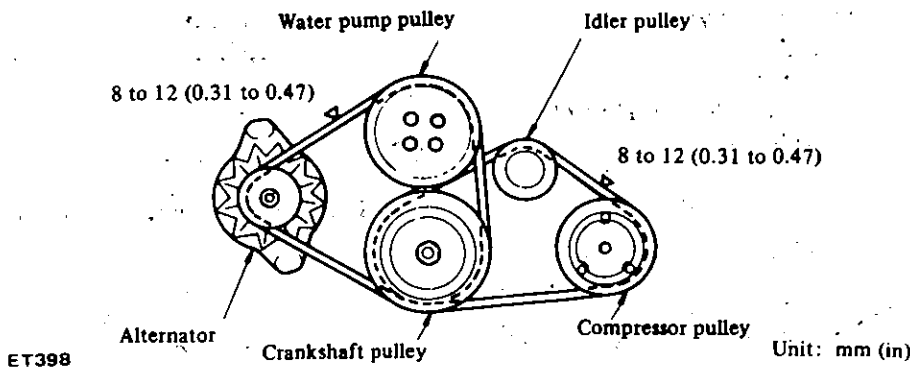
		Unit: mm (in)
Hot	Intake	0.25 (0.010)
	Exhaust	0.30 (0.012)

CHECKING AND ADJUSTING DRIVE BELTS

1. Check for cracks or damage. Replace if necessary.
2. Normal drive belt deflection is shown in figure below when moderate thumb pressure is applied midway between pulleys.

Thumb pressure:

98 N (10 kg, 22 lb)



ET398

Fig. ET-2 Drive belt tension

RETIGHTENING CYLINDER HEAD BOLTS, MANIFOLD NUTS AND CARBURETOR SECURING NUTS

Refer to the following tightening torque specifications:

Tightening torque:

Cylinder head bolts

1st turn

39 N·m
(4.0 kg·m, 29 ft·lb)

2nd turn

59 N·m
(6.0 kg·m, 43 ft·lb)

3rd turn

69 to 83 N·m
(7.0 to 8.5 kg·m,
51 to 61 ft·lb)

Notes:

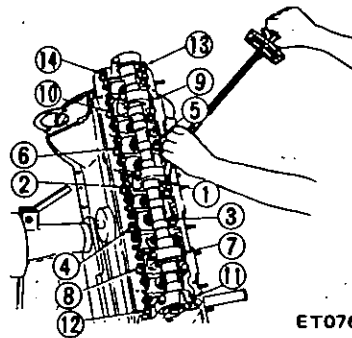
- When engine is cold, bolts should be tightened in two or three steps, in the sequence shown in Figure ET-3, starting from center and working out toward ends.
- Retighten cylinder head bolts after engine has warmed up.

Manifold nuts

12 to 16 N·m
(1.2 to 1.6 kg·m, 9 to 12 ft·lb)

Carburetor nuts

12 to 18 N·m
(1.2 to 1.8 kg·m, 9 to 13 ft·lb)



ET076

Fig. ET-3 Cylinder head bolt tightening sequence

CHANGING ENGINE OIL

- Check if oil is diluted with water or gasoline. Drain and refill oil if necessary.

Tightening torque:

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

Notes:

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

- Check oil level. If below the specified level, raise it up to the H level.

- Engine oil capacity (including oil filter):
 - Maximum (H level) 5.7 liters (6 US qt, 5 Imp qt)
 - Minimum (L level) 4.7 liters (5 US qt, 4 1/2 Imp qt)

- Change engine oil in accordance with the maintenance schedule.

REPLACING OIL FILTER

The oil filter is a cartridge type and can be removed using Oil Filter Wrench ST19320000.

- Check for oil leaks past gasketed flange. If leakage is found, retighten just enough to stop leakage. If retightening is no longer effective, replace filter as an assembly.
- When installing oil filter, tighten by hand.

Note: Do not overtighten oil filter, lest leakage should occur.

CHANGING ENGINE COOLANT

PERMANENT ANTI-FREEZE COOLANT

Note:

The permanent anti-freeze coolant is an ethylene glycol base product containing chemical inhibitors to protect the cooling system from rusting and corrosion. The anti-freeze does not contain any glycerine or ethyl alcohol. It will not evaporate or boil away and can be used with either high or low temperature thermostats. It flows freely, transfers heat efficiently, and will not clog the passages in the cooling system. The anti-freeze must not be mixed with other product. This coolant can be used throughout the seasons of the year.

Engine Tune-up

Whenever coolant is changed, the cooling system must be flushed and refilled with a new coolant. Check the coolant level.

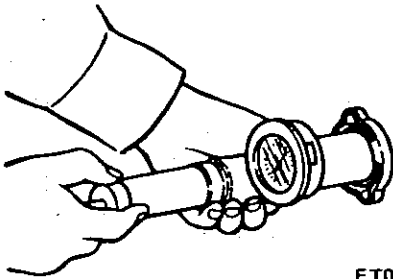
See instructions attached to the anti-freeze container for mixing ratio of anti-freeze to water.

CHECKING COOLING SYSTEM HOSES AND CONNECTIONS

Check hoses and fittings for loose connections or deterioration. Retighten or replace if necessary.

INSPECTION OF RADIATOR CAP

Apply reference pressure [88 kPa (0.9 kg/cm², 13 psi)] to radiator cap by means of a cap tester to see if it is satisfactory. Replace cap assembly if necessary.



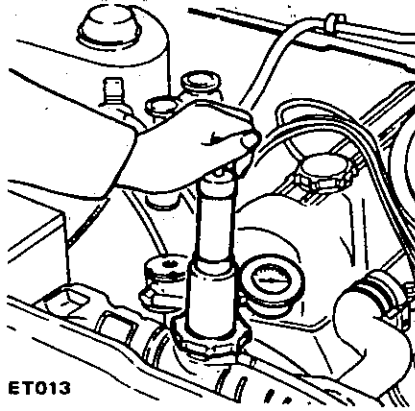
ET012

Fig. ET-4 Testing radiator cap

COOLING SYSTEM PRESSURE TEST

With radiator cap removed, apply reference pressure [157 kPa (1.6 kg/cm², 23 psi)] to the cooling system by means of a tester to detect any leakage.

Water capacity:
Without heater
8.2 liters
(8 3/4 US qt, 7 1/4 Imp qt)
With heater
8.9 liters
(9 3/4 US qt, 7 3/4 Imp qt)

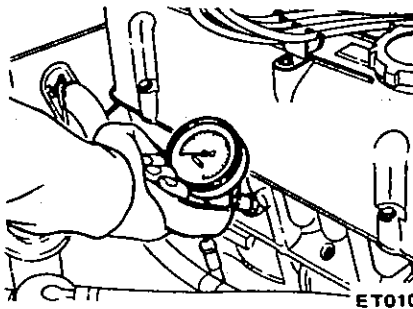


ET013

Fig. ET-5 Cooling system pressure test

CHECKING ENGINE COMPRESSION

1. Warm up engine sufficiently.
2. Disconnect all spark plugs.
3. Disconnect anti-dieseling solenoid valve connector.
4. Properly attach a compression tester to spark plug hole in cylinder being tested.



ET010

Fig. ET-6 Testing compression pressure

5. Fully open choke valve.
6. Depress accelerator pedal to open throttle valves.

Note: Do not "pump" pedal.

7. Start engine as quickly as possible.

Compression pressure:

kPa (kg/cm², psi)/at rpm

Standard

1,177 (12.0, 171)/350

Minimum

883 (9.0, 128)/350

Note: 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.

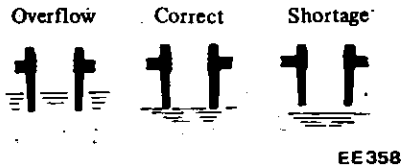
1. If adding oil helps the compression pressure, the chances are that piston rings are worn or damaged.
2. If pressure stays low, the likelihood is that valve is sticking or seating improperly.
3. If cylinder compression in any two adjacent cylinders is low, and if adding oil does not help the compression,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

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

IGNITION AND FUEL SYSTEM

CHECKING BATTERY

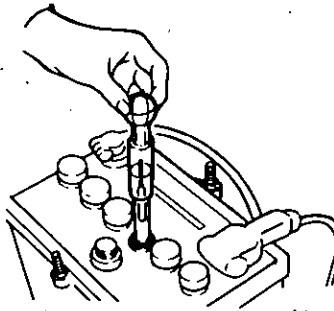
1. Remove six vent plugs and check electrolyte level in each battery cell. If necessary, pour distilled water.



EE358

Fig. ET-7 Checking electrolyte level

2. Measure the specific gravity of battery electrolyte.



ET372

Fig. ET-8 Checking specific gravity of battery electrolyte

4. Install a timing light on No. 1 cylinder spark plug wire, and install a tachometer.
5. Set idling speed to the following specifications.

- 650 rpm (M/T)
- 700 rpm (A/T - "N" position)

6. Check ignition timing with a timing light if it is 10° B.T.D.C. (Before Top Dead Center).

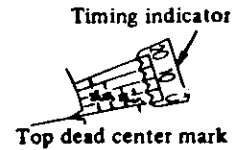


Fig. ET-9 Checking ignition timing

	Permissible value	Full charge value [at 20°C (68°F)]
Frigid climates	Over 1.22	1.28
Other climates	Over 1.20	1.26

Notes:

- a. Clean top of battery and terminals with a solution of baking soda and water. Rinse off and dry with compressed air. Top of battery must be clean to prevent current leakage between terminals and from positive terminal to hold-down clamp.
- b. In addition to current leakage, prolonged accumulation of acid and dirt on top of battery may cause blistering of the material covering connector, straps and corrosion of straps.
- c. After tightening terminals, coat them with petrolatum (vaseline) to protect them from corrosion.

Caution: If the battery cables are disconnected, they should be tightly clamped to the battery terminals to secure a good contact.

CHECKING AND ADJUSTING IGNITION TIMING

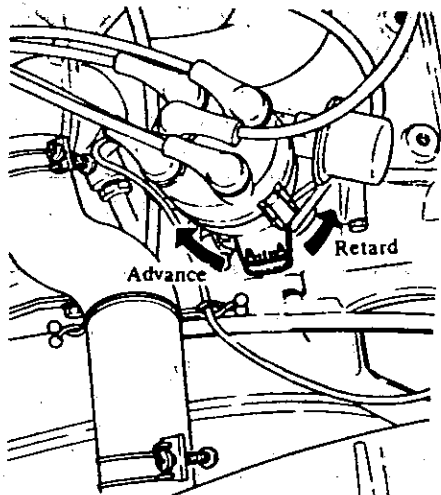
1. Check spark plugs and distributor breaker points for condition.
2. Thoroughly remove dirt and dust from timing mark on crank pulley and timing indicator on front cover.
3. Warm up engine sufficiently.

Ignition timing

	M/T	A/T
Timing B.T.D.C./rpm	$10^\circ/650$	$10^\circ/700$ ("N" position)

If necessary, adjust it as follows:

- (1) Loosen setscrew until distributor can be moved by hand.
- (2) Adjust ignition timing to 10° B.T.D.C.
- (3) Lock distributor setscrew, and make sure that timing is correct.



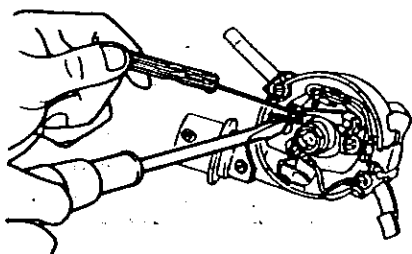
ET399

Fig. ET-10 Adjusting ignition timing

REPLACING DISTRIBUTOR BREAKER POINT

Check distributor breaker points for abnormal pitting and wear. Replace points periodically. Make sure they are properly aligned and that point dwell and gap are correct. Clean and apply distributor grease to cam lobes.

Note: Do not apply grease excessively.



ET400

Fig. ET-11 Checking distributor point gap

Point gap:

0.45 to 0.55 mm
(0.018 to 0.022 in)

Dwell angle:

35° to 41° degrees

CHECKING AND REPLACING SPARK PLUGS

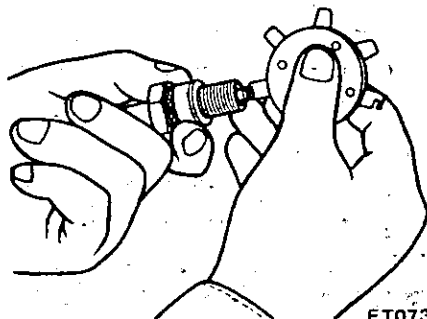
1. Remove and clean plugs in a sand blast cleaner. Inspect each spark

plug. Make sure that they are of the specified heat range.

2. Inspect insulator for cracks or chips. Check both center and ground electrodes.

3. If they are excessively worn, replace with new spark plugs.

4. Replace spark plugs in accordance with the maintenance schedule.



ET073

Fig. ET-12 Checking spark plug gap

Tightening torque:

15 to 25 N·m
(1.5 to 2.5 kg-m, 11 to 18 ft-lb)

Spark plug gap:

0.8 to 0.9 mm
(0.031 to 0.035 in)

Heat range:

BP6ES (L45PW)

CHECKING IGNITION WIRING

Use an ohmmeter to check resistance on high tension cables.

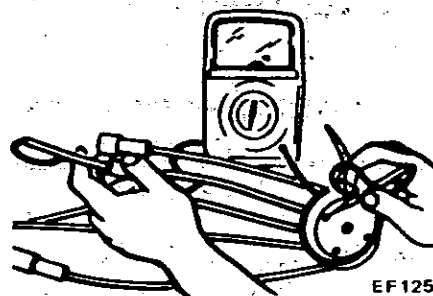
1. Disconnect cables from spark plugs and remove distributor together with high tension cables.

Note:

Do not remove cables from cap.

2. Connect the ohmmeter between cable terminal on the spark plug side and the corresponding electrode inside cap.

3. If the resistance is more than 30,000 ohms, remove cable from cap and check the cable resistance only. If resistance is still more than 30,000 ohms, replace cable assembly.



EF125

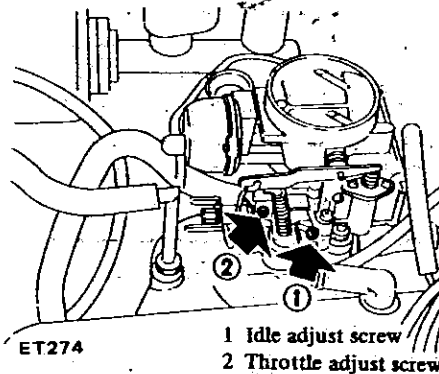
Fig. ET-13 Checking high tension cable

ADJUSTING CARBURETOR IDLE RPM AND MIXTURE RATIO

Notes:

- Do not attempt to screw in idle adjusting screw completely. Doing so could cause damage to tip, which in turn will tend to cause malfunctions.
- On automatic transmission models, adjustment should be made in "N" position.
- In air conditioner equipped models, idle adjustment should be carried out while air conditioner is "OFF".

Idle adjustment is made by throttle adjusting screw and idle adjusting screw after engine is warmed up. See Figure ET-14.



ET274

Fig. ET-14 Throttle and idle adjusting screws

With CO meter

CO meter is very useful tool for idle mixture adjustment. When preparing to adjust idle mixture, it is essential that meter be thoroughly warmed and calibrated.

1. Warm up engine sufficiently and

Engine Tune-up

apply wheel chocks.

2. Continue engine operation for one minute at idling speed.
3. Adjust throttle adjusting screw so that engine speed is at the specified value listed below.

Transmission model	Adjusting value (rpm)
M/T	650
A/T	700 (In "N" position)

4. Check ignition timing and if necessary, adjust it to specifications.
5. Adjust idle adjusting screw so that "CO" percentage is at the specified value; check with CO meter.

CO% 1.5 ± 0.5%

6. Repeat procedures described in items 3 and 5 above until "CO" percentage and engine speed are both at the specified value.

Without CO meter

1. Warm up engine completely.
Check to be sure that float level and ignition timing are correct while engine is at idle speed.
2. Turn out throttle adjusting screw gently until specified engine speed is approximately obtained.

TABLE I SPECIFIED ENGINE IDLING SPEED

	M/T	A/T
Idling speed rpm	680	730 (In "N" position)

3. Turn idle adjusting screw in or out until engine runs smoothly at the highest speed.
4. Turn out throttle adjusting screw until specified engine speed (table I) is obtained.
5. Readjust idle adjusting screw until engine runs smoothly at the highest speed (with the highest vacuum reading).
6. Repeat steps 4 and 5 until engine speed does not rise in spite of adjusting idle adjusting screw.
7. Finally, turn idle adjusting screw clockwise until engine speed drops below specified rpm.

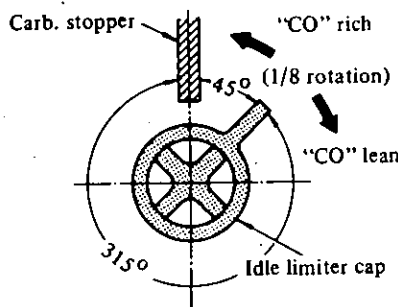
TABLE II ENGINE SPEED DROP

M/T	A/T
30 ± 5	30 ± 5 (In "N" position)

Idle limiter cap

Do not remove this idle limiter cap unless necessary. If this unit is removed, it must be readjusted at time of installation. To adjust, proceed as follows:

1. After adjusting throttle or idle speed adjusting screw, check to be sure that the amount of "CO" contained in exhaust gases meets the established standard.
2. Install idle limiter cap in position, making sure that the adjusting screw can rotate another 1/8 turn in the "CO-RICH" direction.



ET031

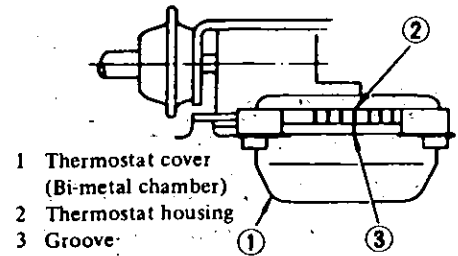
Fig. ET-15 Setting idle limiter cap

CHECKING CHOKE MECHANISM (Choke plate and linkage)

1. Check choke valve and mechanism for free operation, and clean or replace if necessary. A binding can result from petroleum gum formation on choke shaft or from damage.
2. Before starting engine, fully depress accelerator pedal to ensure that choke valve closes properly.
3. Push choke valve with a finger, and check for binding.
4. Check to be sure that bi-metal cover index mark is set at the center of choke housing index mark as shown below.

Note:

Do not set bi-metal cover index mark at any position except the center of choke housing index mark.

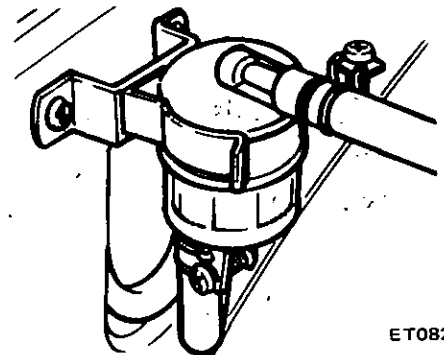


ET034

Fig. ET-16 Bi-metal setting

REPLACING FUEL FILTER

1. Check for a contaminated filter, and water deposit.
All engines use a replaceable cartridge type fuel filter as an assembly.
2. Replace fuel filter in accordance with the maintenance schedule.



ET082

Fig. ET-17 Fuel filter

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

Check fuel lines for loose connections, cracks and deterioration. Retighten loose connections and replace any damaged or deformed parts.

REPLACING AIR CLEANER FILTER

Air cleaner employs a wet paper type cleaner filter (viscous type). As this filter has been specially treated at factory, it need not be cleaned before ultimate replacement. Even if cleaner filter should look dirty, do not attempt to clean it. Cleaning performance is constantly maintained even though it looks contaminated. Care must be taken not to damage cleaner filter.

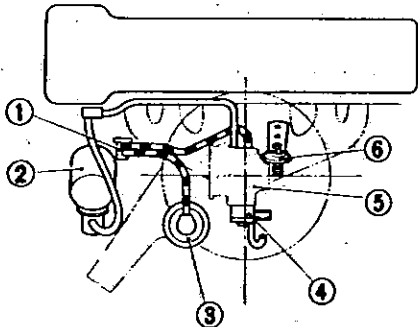
Replace filter at recommended intervals, or more often under dusty driving conditions.

EMISSION CONTROL SYSTEM

CHECKING VACUUM FITTINGS, HOSES, AND CONNECTIONS

Check the condition of fittings and hoses. Retighten or replace if necessary.

- Carburetor to thermal vacuum valve
- Thermal vacuum valve to E.G.R. control valve
- Carburetor to vacuum tube
- Vacuum tube to distributor
- Intake manifold to Master-Vac
- Intake manifold to F.I.C.D. (Air conditioner equipped models)



- 1 Thermal vacuum valve
- 2 Distributor
- 3 E.G.R. control valve
- 4 B.C.D.D.
- 5 Carburetor
- 6 Dash pot

EC049A

Fig. ET-18 Connecting vacuum lines

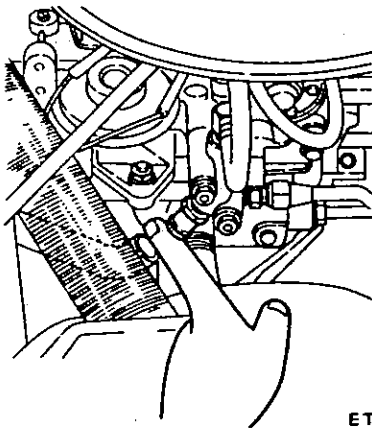
REPLACING P.C.V. VALVE AND FILTER

1. Checking P.C.V. valve in accordance with the following method.

With engine running at idle, remove the ventilator hose from P.C.V. valve,

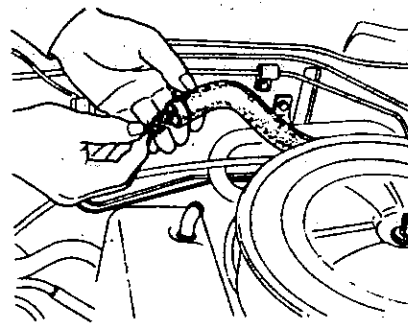
if the valve is working, a hissing noise will be heard as air passes through the valve and a strong vacuum should be felt immediately when a finger is placed over valve inlet.

2. Replace P.C.V. valve and filter in accordance with the maintenance schedule.

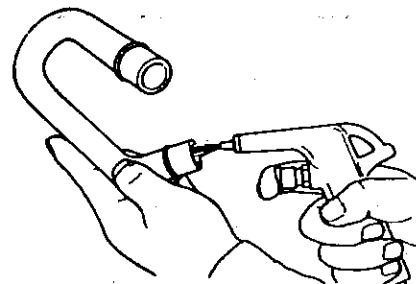


ET331

Fig. ET-19 Checking P.C.V. valve



EC598



ET277

Fig. ET-20 Cleaning ventilation hose

CHECKING EXHAUST GAS RECIRCULATION (E.G.R.) CONTROL SYSTEM

1. Visually check entire E.G.R. control system. Clean it for ease of inspection if it is contaminated with oil. Replace rubber hoses if found cracked or broken.

2. Then start engine.

While engine water is cool, increase engine speed from idling to 3,000 to 3,500 rpm, noting if plate of E.G.R. control valve diaphragm and valve shaft move upwards as speed is increased.

CHECKING VENTILATION HOSES

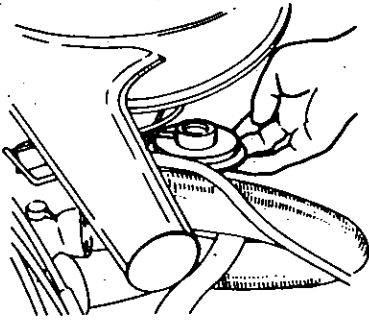
1. Check hoses and hose connections for leaks.

2. Disconnect all hoses and clean with compressed air.

If any hose cannot be freed of obstructions, replace.

Be sure that flame arrester is properly inserted in hose between air cleaner and rocker cover.

It is normal condition if diaphragm does not move at all. If not, replace thermal vacuum valve.



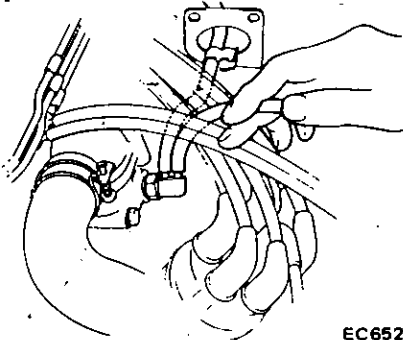
ET344

Fig. ET-21 Checking E.G.R. control valve

3. After engine has warmed up thoroughly, increase engine speed again from idling to 3,000 to 3,500 rpm, noting if plate of E.G.R. control valve diaphragm moves upwards as speed is increased.

It is normal if diaphragm moves upwards. If not, check thermal vacuum valve as described in step 4.

4. Make sure that thermal vacuum valve is open, and that carburetor vacuum is present at the end (E.G.R. control valve side) of vacuum hose. If vacuum is weak or not present at all, replace thermal vacuum valve.



EC652

Fig. ET-22 Checking thermal vacuum valve

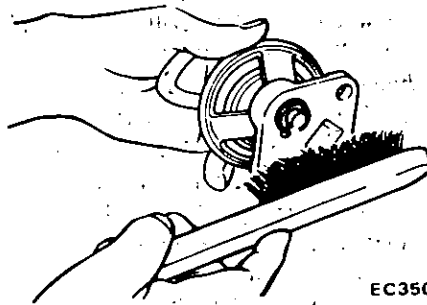
5. With engine running at idling speed, push up E.G.R. control valve diaphragm by manually pressing bottom dish.

It is normal if engine loses stability.

6. Remove E.G.R. control valve from intake manifold.

Visually inspect E.G.R. control valve for sign of damage, wrinkle or otherwise deformation.

Clean E.G.R. control valve seat with brush and compressed air to eliminate clogging for E.G.R. control valve.



EC350

Fig. ET-23 Cleaning E.G.R. control valve seat

CHECKING VAPOR LINES (Hoses, connections, etc.) AND FUEL VAPOR CONTROL VALVE

Fuel tank and vapor vent line

1. Check all hoses and fuel tank filler cap.
2. Disconnect vapor vent line connecting flow guide valve to fuel tank.

3. Connect a 3-way connector, a manometer and a cock (or an equivalent 3-way change cock) to the end of the vent line.

4. Supply fresh air into the vapor vent line through the cock little by little until the pressure becomes 3.923 kPa (400 mmH₂O, 15.75 inH₂O).

5. Shut the cock completely and leave it that way.

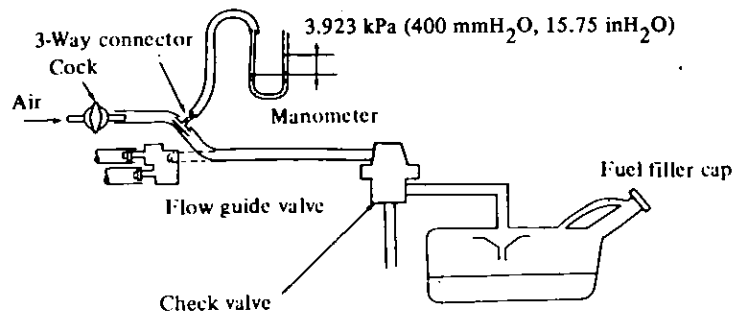
6. After 2.5 minutes, measure the height of the liquid in the manometer.

7. Variation in height should remain within 0.245 kPa (25 mmH₂O, 0.98 inH₂O).

8. When the filler cap does not close completely the height should drop to zero in a short time.

9. If the height does not drop to zero in a short time when the filler cap is removed, an obstructed hose is indicated.

Note: In case the vent line is blocked, 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.



EC052A

Fig. ET-24 Checking evaporative emission control system

Flow guide valve

1. Disconnect all hoses connected to the flow guide valve.
2. While lower pressure air is pressed into the flow guide valve from the ends of vent line of fuel tank side, the air should go through the valve and flow to crankcase side. If the air does

not flow, the valve should be replaced. But when the air is blown from crankcase side, it should never flow to the other two vent lines.

3. While the air is pressed into the flow guide valve from the carburetor air cleaner side, it flows to the fuel tank side and/or crankcase side.

4. This valve opens when the inner pressure is 1.3 kPa (10 mmHg, 0.39 inHg). In case of improper operations or breakage, replace it.

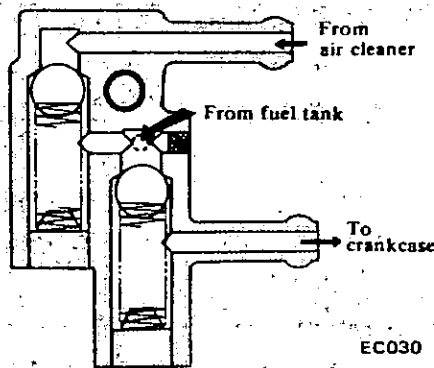
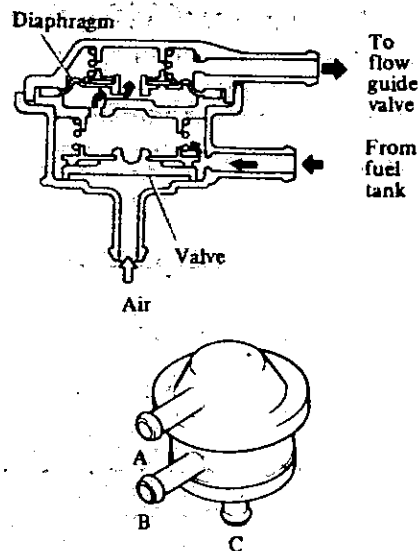


Fig. ET-25 Flow guide valve

1. Disconnect hoses from check valve.
2. Remove check valve.
3. Suck air through portion A of check valve. A large air flow should be felt when sucked forcibly [above 2.7 kPa (20 mmHg, 0.79 inHg)] and should not when sucked softly.
4. Suck air through portion B of check valve. A large air flow should be felt when sucked forcibly [above 1.3 kPa (10 mmHg, 0.39 inHg)] and should not when sucked softly.
5. Suck air through portion B while closing portion A with finger. A large air flow should be felt when sucked forcibly [above 4.7 kPa (35 mmHg, 1.38 inHg)] and should not when sucked softly.

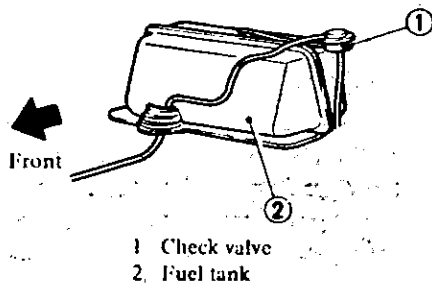
If any of above test results is not satisfactory, replace check valve.



EC054A

Fig. ET-27 Check valve

CHECKING FUEL TANK VALVE



1. Check valve
2. Fuel tank

EC053A

Fig. ET-26 Location of check valve