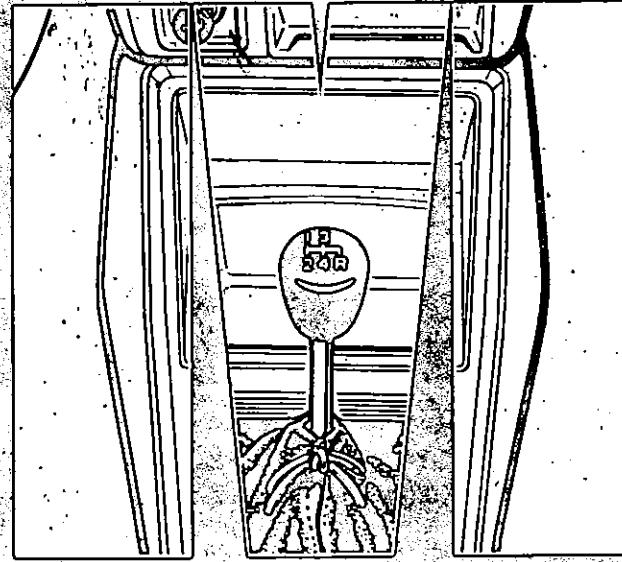
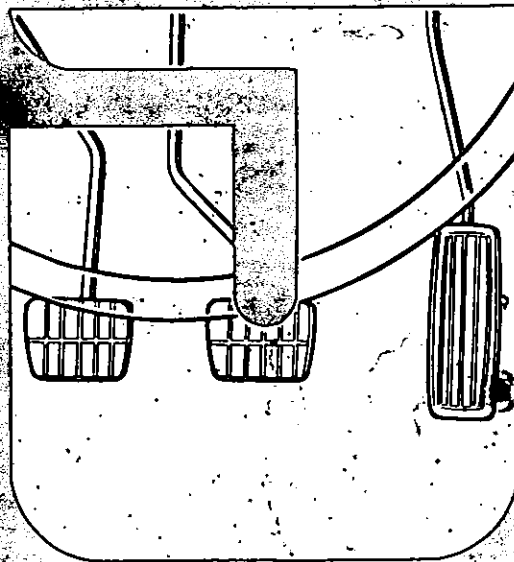
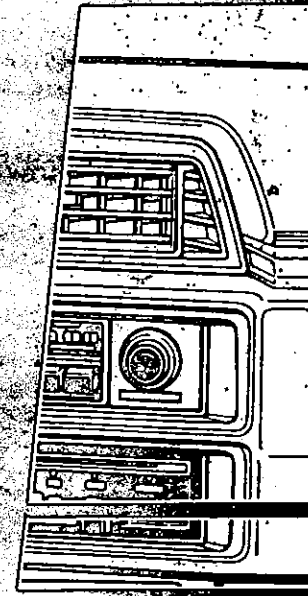
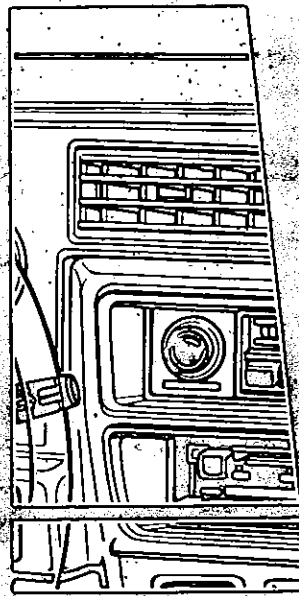
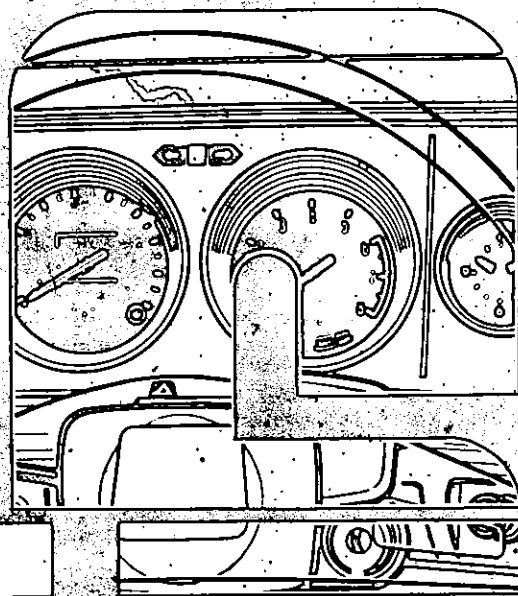
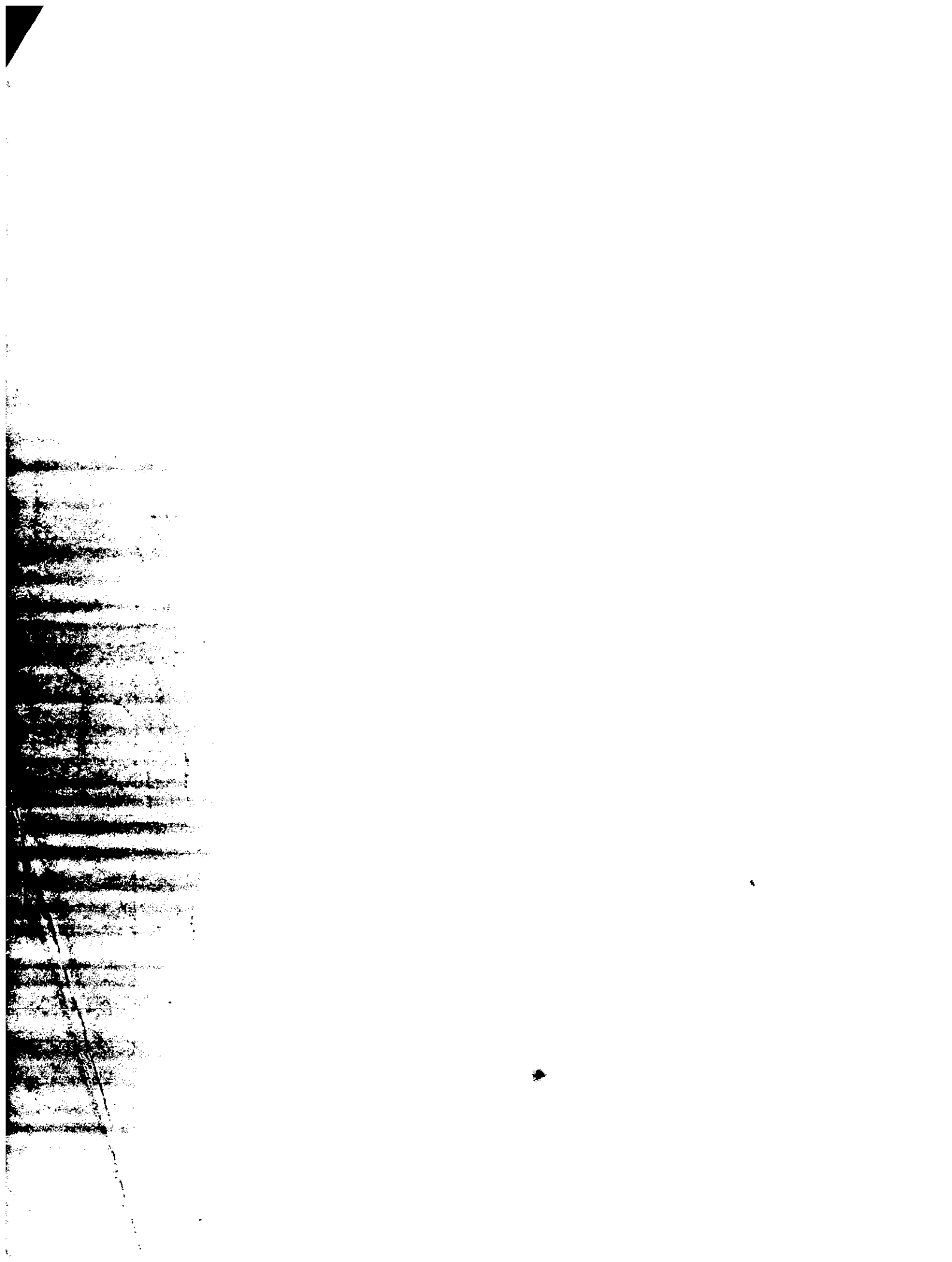


# DATSUN 210

SERVICE MANUAL 1979





# DATSUN 210

## SERVICE MANUAL

*Model  
B310 Series*



**NISSAN MOTOR CO., LTD.**  
17-1, Ginza 6-Chome, Chuo-ku, Tokyo 104, Japan

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## FOREWORD

This service manual has been prepared for the purpose of assisting service personnel of authorized NISSAN/DATSUN dealers in providing effective service and maintenance of the 1979 DATSUN 210.

Since proper maintenance and service are absolutely essential in satisfying the DATSUN owners, 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 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 information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication approval. If your DATSUN model differs from the specifications contained in this manual, consult your NISSAN/DATSUN dealer for information.

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 your DATSUN 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.**

17-1, Ginza 6-Chome, Chuo-ku, Tokyo 104, Japan

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General Information

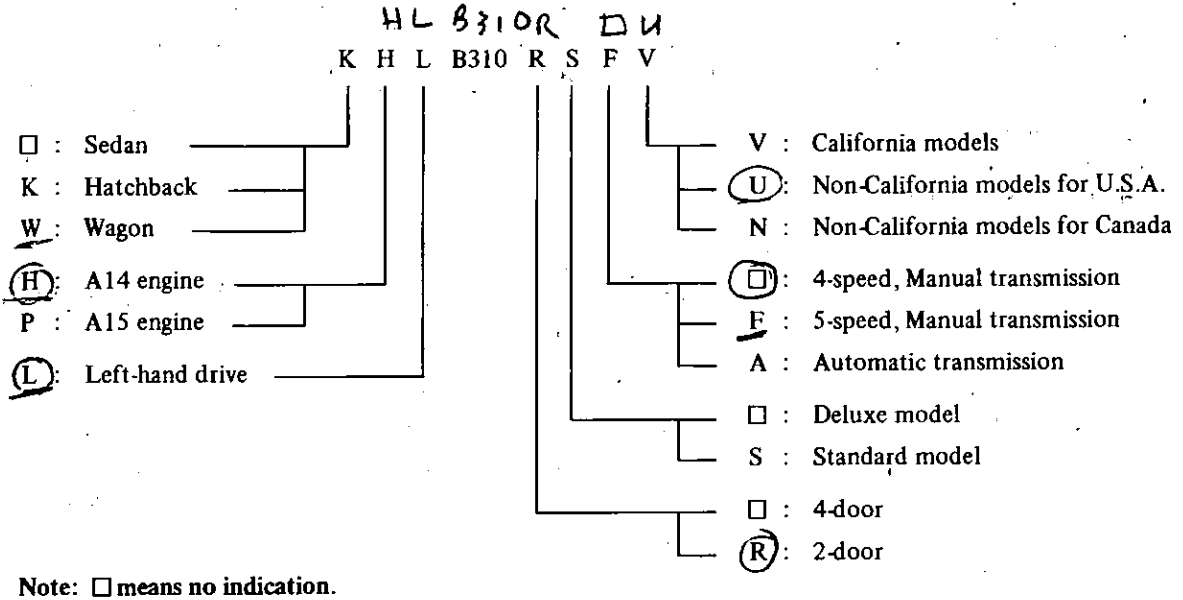
**MODEL VARIATION**

Destination	Class		Model	Engine	Transmission	Differential carrier	
						Model	Gear ratio
U.S.A.	Sedan	4-door	HLB310V	A14	F4W60L	H150A	3.700
		2-door	HLB310AV		3N71B	H150	3.889
	Hatchback		HLB310R(S)V		F4W60L	H150A	3.700
		HLB310RFV	FS5W60L		H150	3.889	
		HLB310RAV	3N71B				
		KHLB310V	F4W60L		H150A	3.700	
		KHLB310FV	FS5W60L				
		KHLB310AV	3N71B		H150	3.889	
	Wagon	WHLB310V	F4W60L		H150A	3.700	
		WHLB310FV	FS5W60L				
		WPLB310AV	A15	3N71B	H150	3.889	
		Sedan	4-door	HLB310U	A14	F4W60L	H150A
	2-door		HLB310AU	3N71B		H150	3.889
			HLB310R(S)U	F4W60L		H150A	3.700
	HLB310RFU		FS5W60L				
	Hatchback		HLB310RAU	3N71B		H150	3.889
			KHLB310U	F4W60L		H150A	3.700
			KHLB310FU*	FS5W60L			
KHLB310AU			3N71B	H150		3.889	
Wagon			WHLB310U	F4W60L		H150A	3.700
			WHLB310FU	FS5W60L			
	WPLB310AU		A15	3N71B	H150	3.889	
	Canada		Sedan	4-door	HLB310N	A14	F4W60L
2-door		HLB310AN		3N71B	H150		3.889
		Hatchback	HLB310R(S)N	F4W60L	H150A		3.700
HLB310RFN			FS5W60L				
HLB310R(S)AN			3N71B	H150	3.889		
KHLB310N			F4W60L	H150A	3.700		
KHLB310FN			FS5W60L				
KHLB310AN			3N71B	H150	3.889		
Wagon		WHLB310N	F4W60L	H150A	3.700		
		WHLB310FN	FS5W60L				
		WHLB310AN	3N71B	H150	3.889		

Note: In this manual, FU model refers to KHLB310FU\*.

# General Information

The meaning of prefix and suffix.



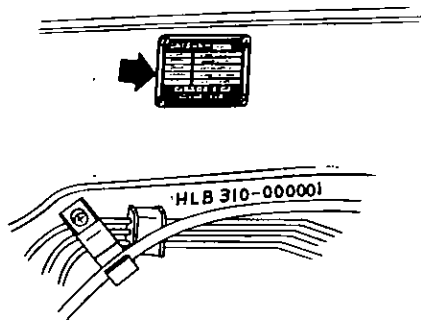
## IDENTIFICATION NUMBERS

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

The engine and vehicle 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.

### CAR IDENTIFICATION PLATE

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

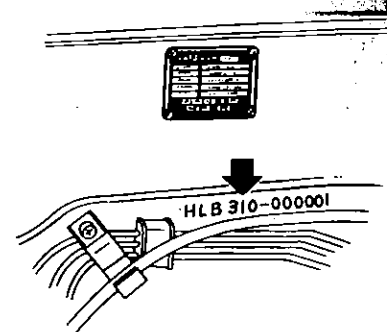


LC023  
Fig. GI-1 Car Identification Plate Location

### CAR SERIAL NUMBER

The car serial number is stamped on the dash panel in the engine compartment and is broken down as shown in the following figure.

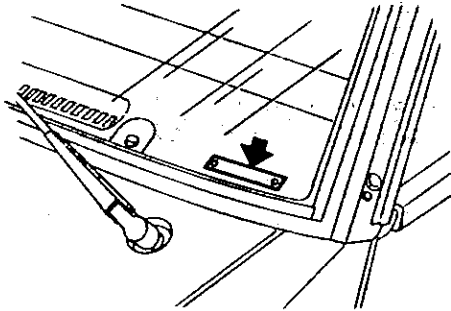
HLB310-XXXXXX  
KHLB310-XXXXXX  
WHLB310-XXXXXX  
WPLB310-XXXXXX



LC025  
Fig. GI-2 Car Serial Number Location

## IDENTIFICATION NUMBER PLATE

The identification number plate is located on the upper surface of the instrument panel and can be seen from outside through the windshield glass. The identification number consists of the car model and the serial number.

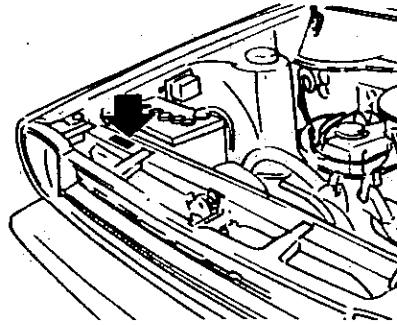


LC024

Fig. G1-3 Identification Number Plate Location

## COLOR CODE NUMBER LABEL

The body color code number label is attached to the top face of the radiator core support.

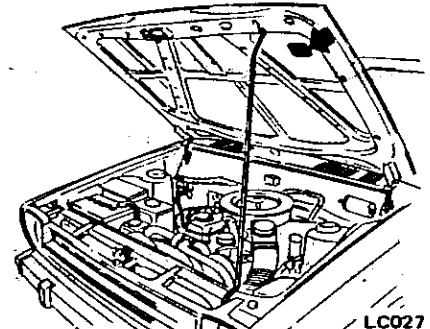


G1391

Fig. G1-5 Color Code Number Label Location

## EMISSION CONTROL INFORMATION LABEL

The emission control information label is attached to the back of the engine hood on the right side.

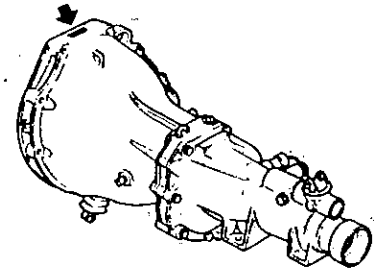


LC027

Fig. G1-7 Emission Control Information Label Location

## MANUAL TRANSMISSION NUMBER

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



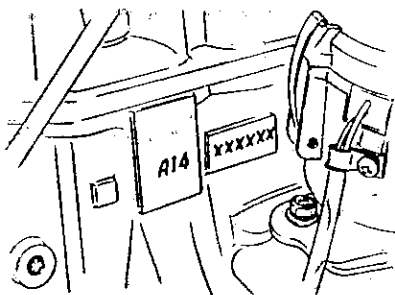
G1225

Fig. G1-8 Manual Transmission 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 engine.

Engine model	Engine number
A14	A14-XXXXXX
A15	A15-XXXXXX

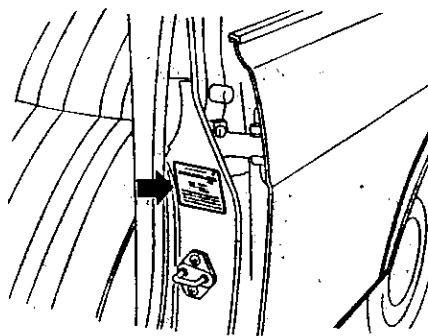


SP062

Fig. G1-4 Engine Serial Number Location

## M.V.S.S. CERTIFICATION LABEL

The M.V.S.S. certification label is attached to the driver's side lock pillar or center pillar as shown in Fig. G1-6.

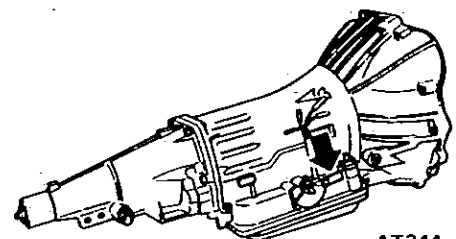


LC026

Fig. G1-6 M.V.S.S. Certification Label Location

## AUTOMATIC TRANSMISSION NUMBER

The transmission serial number plate is attached to the right-hand side of the transmission case.



AT344

Fig. G1-9 Automatic Transmission Number Location



## APPROXIMATE REFILL CAPACITIES

			Liter	US measure	Imp measure	
Engine crankcase	Without oil filter	A14	3.2	3 3/8 qt	2 3/4 qt	
		A15	2.8	3 qt	2 1/2 qt	
	<u>With oil filter</u>	<u>A14</u>	3.7	<u>3 3/4 qt</u>	3 1/4 qt	
		A15	3.3	3 3/8 qt	2 3/4 qt	
	Engine cooling system	Without heater	M/T	5.2	5 1/2 qt	4 3/8 qt
			A/T	5.0	5 1/4 qt	4 3/8 qt
<u>With heater</u>		<u>M/T</u>	5.9	<u>6 1/4 qt</u>	5 1/4 qt	
		A/T	5.7	6 qt	5 qt	
Transmission case	<u>Manual</u>	<u>4-speed</u>	1.3	<u>2 3/4 pt</u>	2 1/4 pt	
		5-speed	1.2	2 1/2 pt	2 1/8 pt	
	Automatic *1		5.3	5 3/8 qt	4 3/8 qt	
Final drive case housing			0.9	1 3/8 pt	1 3/8 pt	
Steering gear box			0.25	1/2 pt	1/2 pt	
Fuel tank			50	<u>13 1/4 gal</u>	11 gal	
Air conditioning system	Refrigerant		0.8 to 1.0 kg	1.8 to 2.2 lb	1.8 to 2.2 lb	
	Compressor oil		0.237	8.0 fl oz	8.3 fl oz	

\*1 Includes 2.7 liters (2 3/8 US qt, 2 3/8 Imp qt) for torque converter.

## RECOMMENDED FUEL

Use an unleaded or low-lead gasoline with a minimum octane rating of 91 RON (Research Octane Number).

For cars equipped with the catalytic converter (California and FU models), use only unleaded gasoline to

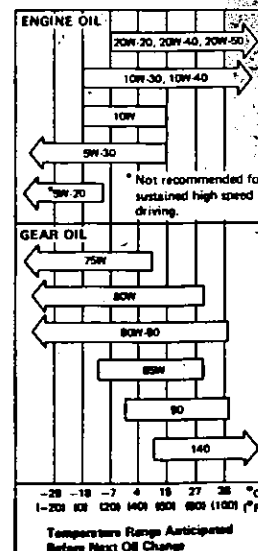
protect the catalytic converter from contamination.

## RECOMMENDED LUBRICANTS

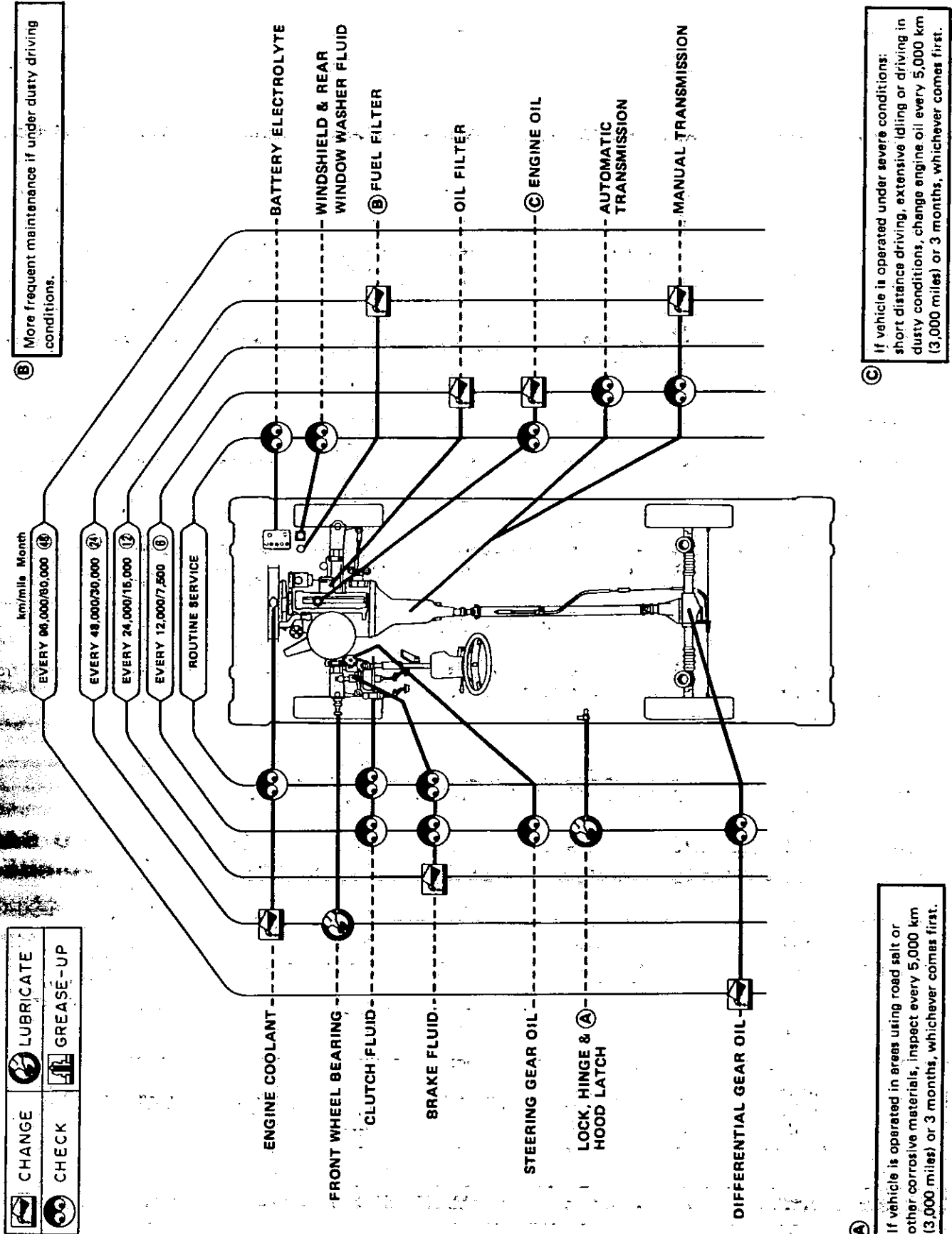
### RECOMMENDED LUBRICANTS

Lubricant		Specifications	Remarks
Gasoline engine oil		API SE	Further details, refer to recommended SAE viscosity chart.
Gear oil	Transmission and steering	API GL-4	
	Differential	API GL-5	
Automatic T/M fluid		Type DEXRON	
Multi-purpose grease		NLGI No. 2	Lithium soap base
Brake and clutch fluid		DOT 3	US FMVSS No. 116
Anti-freeze			Ethylene glycol base

### RECOMMENDED SAE VISCOSITY NUMBER



# LUBRICATION CHART



(B) More frequent maintenance if under dusty driving conditions.

(C) If vehicle 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.

(A) If vehicle is operated in areas using road salt or other corrosive materials, inspect every 5,000 km (3,000 miles) or 3 months, whichever comes first.

Fig. G1-10 Lubrication Chart

# 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 mile) service is one of the most important services required to ensure the maximum emission control performance and optimum engine condition.

MAINTENANCE OPERATION	MAINTENANCE INTERVAL										
	Periodic maintenance should be performed at number of kilometers, miles or months, whichever comes first.										
	1.6 (1)	7.5 (7.5)	12 (15)	24 (22.5)	36 (30)	48 (37.5)	60 (45)	72 (45)	84 (45)	96 (45)	108 (45)
Kilometers x 1,000 (Miles x 1,000)	1.6 (1)	7.5 (7.5)	12 (15)	24 (22.5)	36 (30)	48 (37.5)	60 (45)	72 (45)	84 (45)	96 (45)	108 (45)
Months	—	6	12	18	24	30	36	42	48	54	60

## EMISSION CONTROL MAINTENANCE

Intake & exhaust valve clearance	A	A	A	A	A	A	A	A	A	A	A
Drive belts	A	A	A	A	A	A	A	A	A	A	A
Engine oil & oil filter	(1)	R	R	R	R	R	R	R	R	R	R
Engine coolant											
Cooling system hoses & connections											
Vacuum fitting hoses & connections											
Carburetor idle rpm & mixture ratio	A	A	A	A	A	A	A	A	A	A	A
Choke mechanisms (choke plate & linkage)	I	I	I	I	I	I	I	I	I	I	I
Fuel shut-off system on deceleration (Non-California models with catalytic converter)	I	I	I	I	I	I	I	I	I	I	I
Fuel filter	(2)										
Fuel lines (hoses, piping, connections, etc.)											
Carburetor & air pump air cleaner filter (U.S.A. models except non-California models with catalytic converter)	(2)										
Carburetor air cleaner filter (Non-California models with catalytic converter and Canada models)	(2)										
Automatic temperature control air cleaner											
Ignition timing											
Spark plugs											
Ignition wiring											
Positive crankcase ventilation (P.C.V.) valve & filter	(2)										
Ventilation hoses											
Vapor lines											
Fuel tank vacuum relief valve (if so equipped)											
Carbon canister filter											
Air induction valve filter (Non-California models with catalytic converter and Canada models)	(2)										

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

**UNDERHOOD MAINTENANCE**

Brake, clutch, automatic transmission & steering gear fluid or oil level & leaks	I	I	I	I	I	I	I	I
Brake fluid			R			R		R
Brake booster vacuum hoses, connections & check valve						I		
Air conditioning system hoses, connections & refrigerant leaks						I		

**UNDER VEHICLE MAINTENANCE**

Brake, clutch, fuel & exhaust systems for proper attachment, leaks, cracks, chafing, abrasion, deterioration, etc.		I	I	I	I	I	I	I
Manual transmission oil			I	I	I	R	I	I
Differential gear oil	(3)		I	I	I	I	I	I
Steering gear box & linkage, suspension parts & propeller shaft for damaged, loose & missing parts.		I	I	I	I	I	I	I

**OUTSIDE AND INSIDE MAINTENANCE**

Rotate wheel position & inspect wheel balance & wheel alignment						I	I	I
Disc brake pads & other brake components for wear, deterioration & leaks	(4)					I	I	I
Brake drums, linings & other brake components for wear, deterioration & leaks	(4)					I	I	I
Front wheel bearing								L
Locks, hinges & hood latch	(4)					L	L	L
Seat belts, buckles, retractors, anchors & adjuster						I	I	I
Foot brake, parking brake & clutch for free play & operation						I	I	I

The above charts show the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

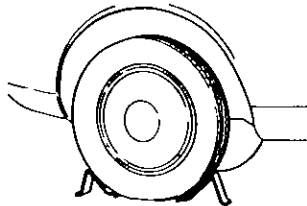
Abbreviations: A = Adjust R = Replace  
I = Inspect, correct, replace if necessary  
L = Lubricate

- NOTE:**
- (1) If vehicle 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 if under dusty driving conditions.
  - (3) Replace differential gear oil every 96,000 km (60,000 miles) or 4 years, whichever comes first.
  - (4) If vehicle is operated in areas using road salt or other corrosive materials, inspect every 5,000 km (3,000 miles) or 3 months, whichever comes first.

## LIFTING POINTS AND TOWING

### PANTOGRAPH JACK

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



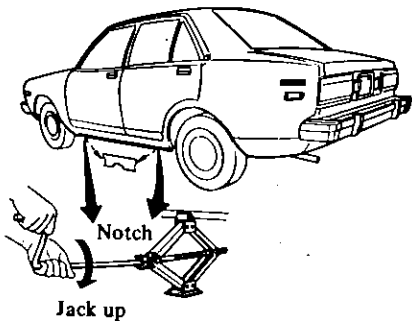
G1085

Fig. G1-11 Wheel Chocks

Apply the pantograph jack furnished with the car to the position indicated below in a safe manner. See Fig. G1-12.

**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.



TR050

Fig. G1-12 Jack Up Points

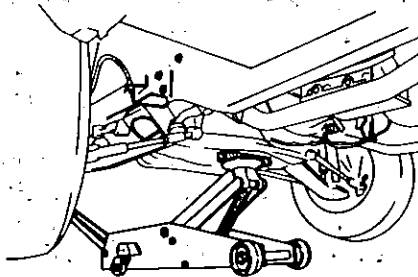
### GARAGE JACK AND SAFETY STAND

**WARNING:**

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

### FRONT SIDE

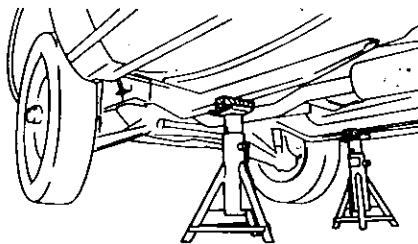
1. When jacking up the front of the car, place the chocks behind the rear wheels to hold them.
2. Apply the garage jack under the front suspension member. Be sure not to lift up the engine oil pan.



G1372

Fig. G1-13 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. G1-14.



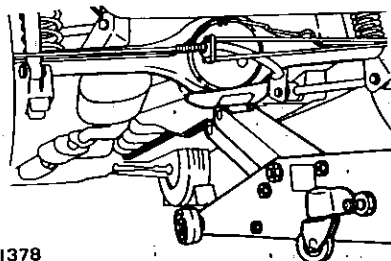
G1373

Fig. G1-14 Front Supportable 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 differential carrier.

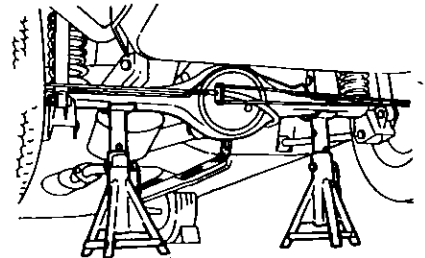


G1378

Fig. G1-15 Rear Jack Up Point

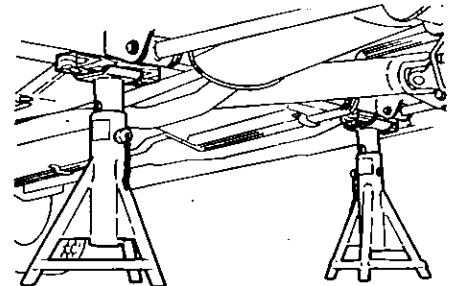
3. Jack up the car gently just high enough to place the safety stands under the rear axle case or body.

Place the stands at the positions indicated below.



G1379

Fig. G1-16 Rear Supportable Points (Rear axle case)



G1392

Fig. G1-17 Rear Supportable Points (Body)

## TOWING

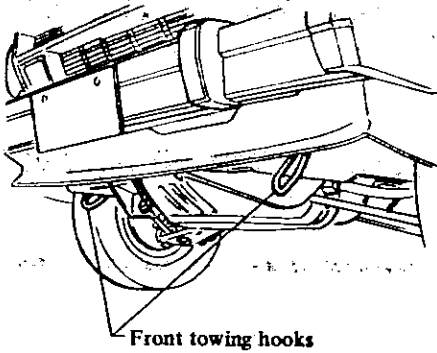
**CAUTION:**

- a. It is necessary to use proper towing equipment, to avoid possible damage to the car during a towing operation. Towing is in accordance with Towing Procedure Manual at dealer side.
- b. All applicable State or Provincial (in Canada) laws and local laws regarding the towing operation must be obeyed.

### FRONT SIDE

Front towing hooks are provided on both front side members.

## General Information



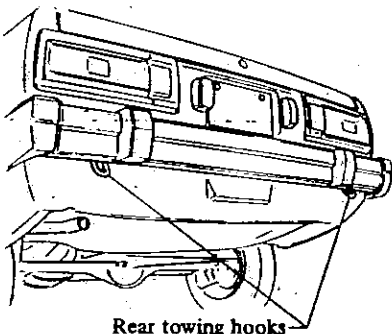
Front towing hooks

GI417

Fig. GI-15 Front Towing Hooks

### REAR SIDE

Rear towing hooks are provided on both rear sides.



Rear towing hooks

GI418

Fig. GI-16 Rear Towing Hooks

### CAUTION:

- 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.
- If the transmission is inoperative, tow the car with the rear wheels off the ground, or with the propeller shaft removed.
- 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.
- When towing an automatic transmission model on its rear wheels, do not exceed 30 km/h (20 MPH) and a distance of 30 km (20 miles).
- Release the parking brake and set the gearshift lever in "Neutral" position before starting to tow the car.

### REAR SIDE

Use rear towing hooks for tie-down at the rear side.

## TIE-DOWN

### FRONT SIDE

Use front towing hooks for tie-down at the front side.

## SPECIAL TOOLS

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.

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 210 for Special Tool List and further information of Special Tools.

**SECTION ET**

ET

**ENGINE TUNE-UP**

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EMISSION CONTROL

EMISSION CONTROL DEVICES

Engine model		A14				B310				A15*		
		California models		Non-California models (Except for Canada)		Canada		California models		Non-California models (Except for Canada)		
Item	Car model	Transmission	California models		Non-California models (Except for Canada)		Canada		California models		Non-California models (Except for Canada)	
			M/T	A/T	M/T (Except FU models)	A/T	M/T (FU models)	M/T	A/T	M/T	A/T (Station Wagon models)	
AIR CLEANER		A.T.C. air cleaner	X	X	X	X	X	X	X	X	X	X
		Idle compensator (Dual type)	X	X	X	X	X	X	X	X	X	X
		Fresh air duct	X	X	X	X	X	X	X	X	X	X
ENGINE BASE		Early fuel evaporative system (Exhaust gas type)	X	X	X	X	X	X	X	X	X	X
		P.T.C. auto choke	X	X	X	X	X	X	X	X	X	X
CARBURETOR		Throttle opener	X	X	X	X	X	X	X	X	X	X
		Fuel shut-off system	-	-	-	-	-	-	-	-	-	-
IGNITION SYSTEM		Dash pot	X	X	X	X	X	X	X	X	X	X
		H.I.C. ignitor *	X	X	X	X	X	X	X	X	X	X
		Spark timing control system (T.C.S.)	X	X	X	X	X	X	X	X	X	X
		Thermal vacuum valve	X	X	X	X	X	X	X	X	X	X
A.I.S.		Vacuum delay valve	-	-	-	-	-	-	-	-	-	-
		Air pump, Air pump air cleaner, check valve, A.B. valve	X	X	X	X	X	X	X	X	X	X
E.G.R. SYSTEM		Combined air control (C.A.C.) valve	X	X	X	X	X	X	X	X	X	X
		Relief valve	-	-	-	-	-	-	-	-	-	-
		Air induction valve, Filter, A.B. valve	-	-	-	-	-	-	-	-	-	-
		Exhaust gas recirculation (E.G.R.) valve	X	X	X	X	X	X	X	X	X	X
		Thermal vacuum valve	X	X	X	X	X	X	X	X	X	X
CATALYZER		Back pressure transducer (B.P.T.) valve	X	X	X	X	X	X	X	X	X	X
		Catalytic converter	X	X	X	X	X	X	X	X	X	X

\*: Newly equipped unit on 1979 models  
 Remarks: X ... Available  
 ... Not available  
 M/T: Manual transmission  
 A/T: Automatic transmission  
 A.T.C.: Automatic temperature control  
 P.T.C.: Positive temperature coefficient  
 A.I.S.: Air injection system or Air induction system  
 A.B. valve: Anti-backfire valve



## BASIC MECHANICAL SYSTEM

### ADJUSTING INTAKE AND EXHAUST VALVE CLEARANCE

Note: After tightening cylinder head bolts, adjust intake and exhaust valve clearances.

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

To adjust, proceed as follows:

1. Start engine and warm it up until water temperature indicator points to the middle of gauge. Then stop engine.
2. Rotate crankshaft to bring No. 1 cylinder in top dead center on its compression stroke.
3. Remove valve rocker cover.

Adjust valve clearance at following four points while engine is still hot:

- ① Exhaust valve of No. 1 cylinder
- ② Intake valve of No. 1 cylinder
- ③ Intake valve of No. 2 cylinder
- ④ Exhaust valve of No. 3 cylinder

Note: Numbers in circle agree with those in accompanying sketch.

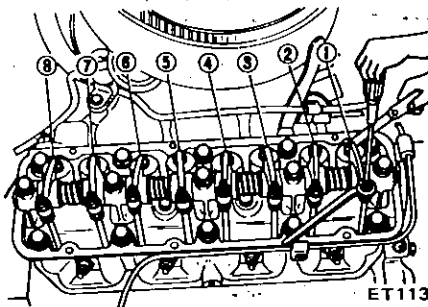


Fig. ET-1 Adjusting Valve Clearance.

4. Again, rotate crankshaft one turn so that No. 4 piston is in top dead center on its compression stroke. Adjust following valves:

- ⑤ Exhaust valve of No. 2 cylinder
- ⑥ Intake valve of No. 3 cylinder
- ⑦ Intake valve of No. 4 cylinder
- ⑧ Exhaust valve of No. 4 cylinder

Adjustment should be made while engine is hot. After all valves have

been adjusted correctly, tighten lock nut firmly to secure the adjustment.

Valve clearance:

Hot:

Intake 0.35 mm (0.014 in)

Exhaust 0.35 mm (0.014 in)

Ⓣ Tightening torque:

Valve rocker adjusting nut

1.6 to 2.2 kg-m

(12 to 16 ft-lb)

### 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: 10 kg (22 lb)

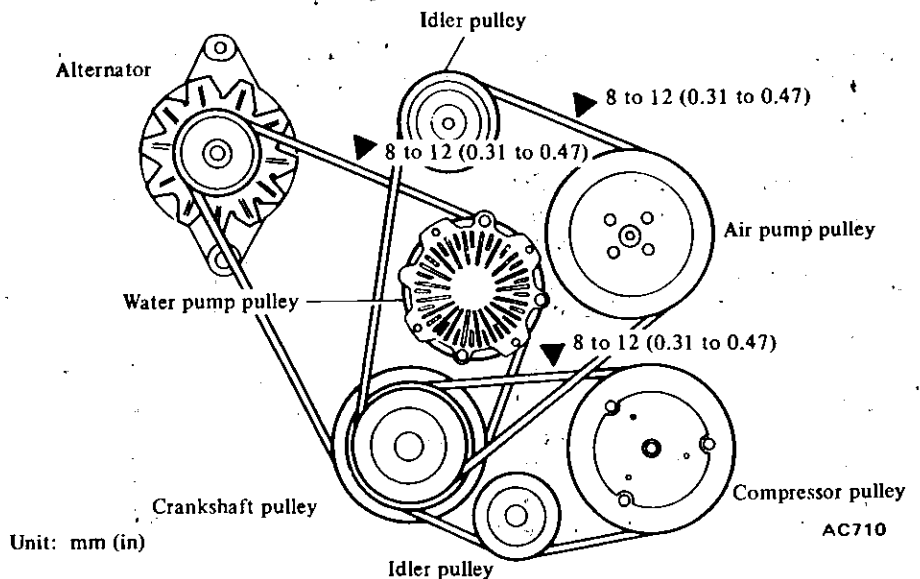


Fig. ET-2 Checking Drive Belts for Deflection

### CHANGING ENGINE OIL

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

Note:

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

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

3. Change engine oil in accordance with the maintenance schedule.

Engine oil capacity:

A14

With oil filter

3.7 liters

(3 1/8 US qt, 3 1/2 Imp qt)

Without oil filter

3.2 liters

(3 1/8 US qt, 2 1/2 Imp qt)

A15

With oil filter

3.3 liters

(3 1/8 US qt, 2 1/2 Imp qt)

Without oil filter

2.8 liters

(3 US qt, 2 1/2 Imp qt)

### REPLACING OIL FILTER

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

1. Check for oil leaks past gasketed flange. If leakage is found, retighten just enough to stop leakage. If retightening is no longer effective, re-

place filter as an assembly.

2. 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.

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

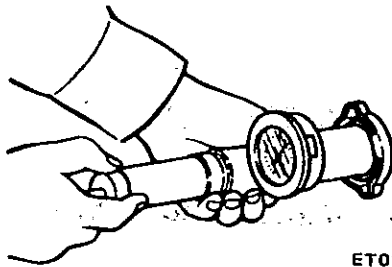
See instructions attached to the anti-freeze container for mixing ratio of anti-freeze to water.

## 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 [0.9 kg/cm<sup>2</sup> (13 psi)] to radiator cap by means of a cap tester to see if it is satisfactory. Replace cap assembly if necessary.

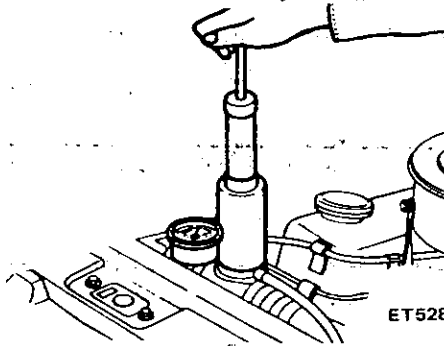


ET012

Fig. ET-3 Testing Radiator Cap

## COOLING SYSTEM PRESSURE TEST

With radiator cap removed, apply reference pressure [1.6 kg/cm<sup>2</sup> (23 psi)] to the cooling system by means of a tester to detect any leakage.



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Fig. ET-4 Testing Cooling System Pressure

### Water capacity (M/T models):

Without heater

5.2 liters

(5 1/4 US qt, 4 3/8 Imp qt)

With heater

5.9 liters

(6 1/4 US qt, 5 1/4 Imp qt)

### Water capacity (A/T models):

Without heater

5.0 liters

(5 1/4 US qt, 4 3/8 Imp qt)

With heater

5.7 liters

(6 US qt, 5 Imp qt)

## CHECKING ENGINE COMPRESSION

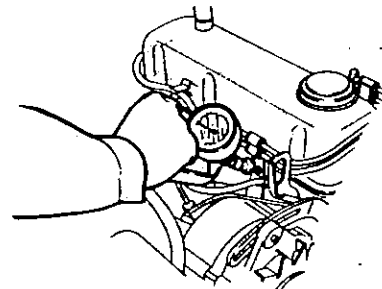
Note:

- a. To check cylinder compression, it is essential to remove all spark plugs. The purpose of this test is to

determine whether there is excessive leakage past piston rings, head gasket, etc. To test, engine should be heated to the operating temperature and throttle valve opened.

- b. Cylinder compression in cylinders should not be less than 80% of the highest reading. Different compression in two or more cylinder usually indicates an improperly seated valve or broken piston ring.
- c. Low compression in cylinders can result from worn piston rings. This trouble may usually be accompanied by excessive fuel consumption.

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.



ET529

Fig. ET-5 Testing Compression Pressure

5. Depress accelerator pedal to open throttle and choke valves.

Note: Do not "pump" pedal.

6. Start engine as quickly as possible.

Compression pressure:

kg/cm<sup>2</sup> (psi)/at rpm

Standard 13.5 (192)/350

Minimum 12.5 (178)/350

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,

sion pressure, 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 compres-

sion, there is leakage past the gasketed surface.

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

## IGNITION AND FUEL SYSTEM

### CHECKING BATTERY

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

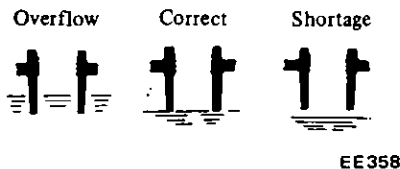


Fig. ET-6 Checking Electrolyte Level

2. Measure the specific gravity of battery electrolyte.

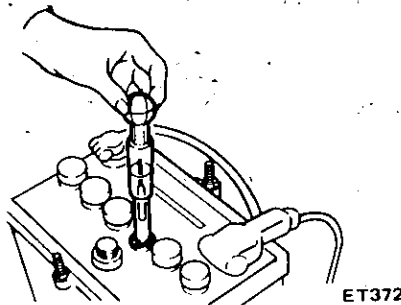


Fig. ET-7 Checking Specific Gravity of Battery Electrolyte

#### WARNING:

When selector lever is shifted to "D" position, apply parking brake and block both front and rear wheels with chocks.

#### Note:

- On FU models, set idling speed with distributor vacuum hose disconnected.
- Disconnect distributor vacuum hose at distributor diaphragm side, and plug hose with blind plug. See Fig. ET-8.

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

#### Note:

- 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.
- 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.
- 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

- Check spark plugs for condition.
- Thoroughly remove dirt and dust from crank pulley at timing mark location and front cover at timing indicator.
- Warm up engine sufficiently.
- Connect engine tachometer and timing light in their proper positions.
- Adjust idling speed to the specified value.

#### Idling speed:

- Manual transmission  
700 rpm
- Automatic transmission  
650 rpm  
(in "D" position)

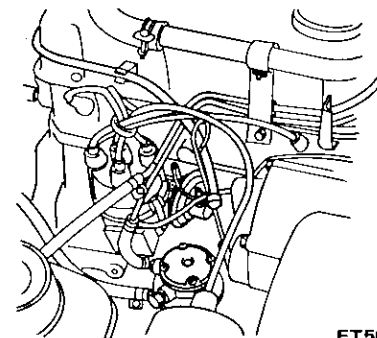


Fig. ET-8 Disconnecting Distributor Vacuum Hose

- Check ignition timing with a timing light to ensure that it is adjusted to specifications indicated below.

#### Ignition timing:

- Manual transmission  
5° B.T.D.C./700 rpm  
(California & FU models)  
10° B.T.D.C./700 rpm  
(Non-California & Canada models)
- Automatic transmission  
5° B.T.D.C./650 rpm  
(California models)

- 8° B.T.D.C./650 rpm  
(Non-California models  
except Canada)
- 10° B.T.D.C./650 rpm  
(Canada models)

**Note:** On FU models, ignition timing is set under a condition where distributor vacuum hose is disconnected.

If necessary, adjust ignition timing as follows:

- (1) Loosen set screw until distributor can be moved by hand.
- (2) Adjust ignition timing to specifications.
- (3) Lock distributor set screw, and make sure that timing is correct.

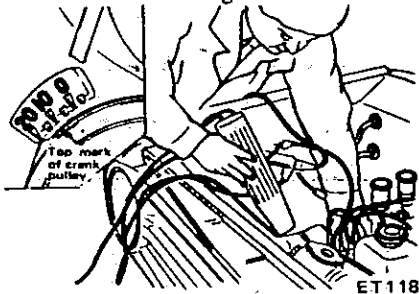


Fig. ET-9 Adjusting Ignition Timing

7. On FU models, proceed as follows:

- (1) Remove blind plug from distributor vacuum hose, and connect hose to distributor diaphragm.
- (2) If engine speed varies in this state, set idling speed at specified value with throttle adjusting screw.

### 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.

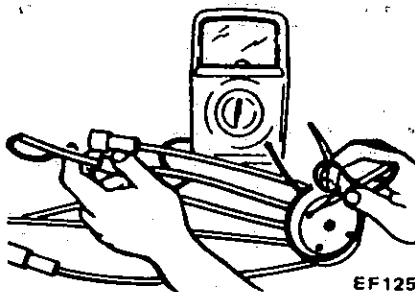


Fig. ET-10 Checking High Tension Cable

### 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.

Type	U.S.A. models	Standard	BP5ES-11, L46PW-11
		Hot type	BP4E-11, L47PW-11
FU models	FU models	Cold type	BP7ES-11, BP6ES-11 L44PW-11, L45PW-11
		Standard	BP5EQ-13, L46PM-13
		Hot type	BP4EQ-13, L47PM-13
Canada models	Canada models	Cold type	BP6EQ-13, L45PM-13 BP7EQ-13, L44PM-13
		Standard	BPR5ES
		Hot type	BPR4ES
Plug gap mm (in)	U.S.A. models	Cold type	BPR6ES
		U.S.A. models	1.0 to 1.1 (0.039 to 0.043)
		FU models	1.1 to 1.3 (0.043 to 0.051)
Tightening torque	kg-m (ft-lb)	Canada models	0.8 to 0.9 (0.031 to 0.035)
			1.5 to 2.0 (11 to 14)