

# DATSUN 1600

## SERVICE MANUAL

MODEL 510 SERIES



**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 authorized NISSAN/DATSUN dealers in providing effective service and maintenance of the 1973 Datsun 1600.

Since proper maintenance and service are absolutely essential in satisfying the owners of Datsun, 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.

The Quick Reference Index on the first page enable the user to quickly locate and desired section. At the beginning of each individual section is a table of contents, which gives the page number on which each major subject begin. An index is placed at the beginning of each major subject within the section.

The Special Tools, when required, presented at the "SE" section.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication approval.

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## SECTION GI

GI

# GENERAL INFORMATION

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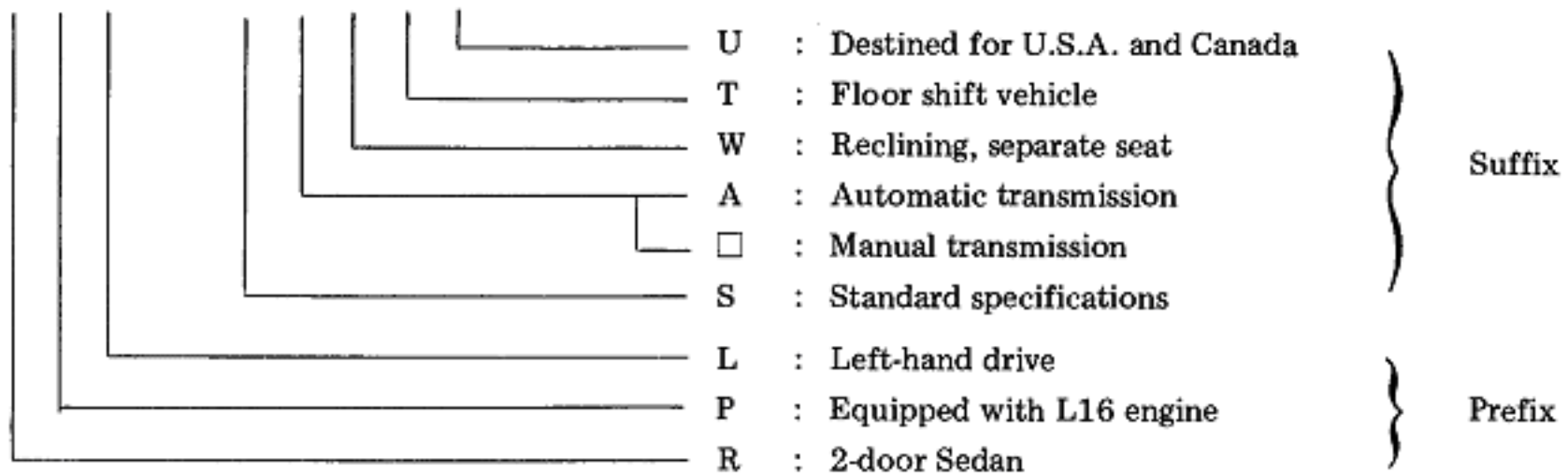
## GENERAL INFORMATION

### MODEL VARIATION

Model	Engine	Transmission type and model	Transmission control	Differential carrier	
				Model	Gear ratio
RPL510SWTU	L16	Manual-F4W63L Automatic-3N71B	Floor	R160	3.700
RPL510SAWTU		3N71B			4.111

The meaning of prefix and suffix

R P L 510 S A W T U



Note: □ means no indication.

## 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.

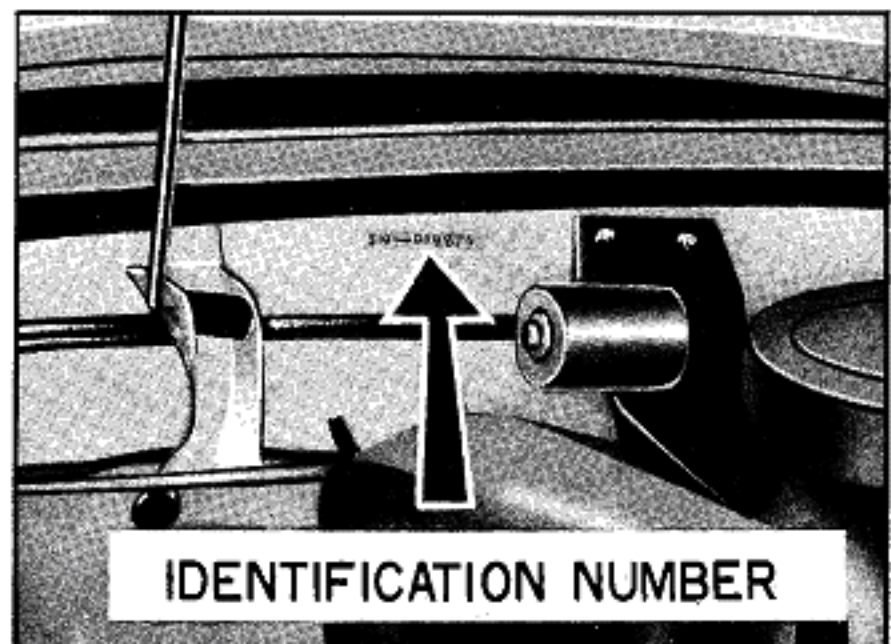
### Car identification plate

The car identification plate is located at the left side of hood ledge. The plate contains the vehicle type, engine capacity, max. horse-power, wheelbase and engine and car serial numbers.

### Car serial number

The car serial number is stamped on the upper right side of the dash panel and broken down as shown in the following figure. (Fig. GI-1)

The car number consists of the vehicle model and the serial number. (PL510 - xxxxxx)



*Fig. GI-1 Identification number*

## GENERAL INFORMATION

### Identification number plate

The car identification number plate is stamped on the left, upper side of instrument panel. The plate can be seen from outside of the car.

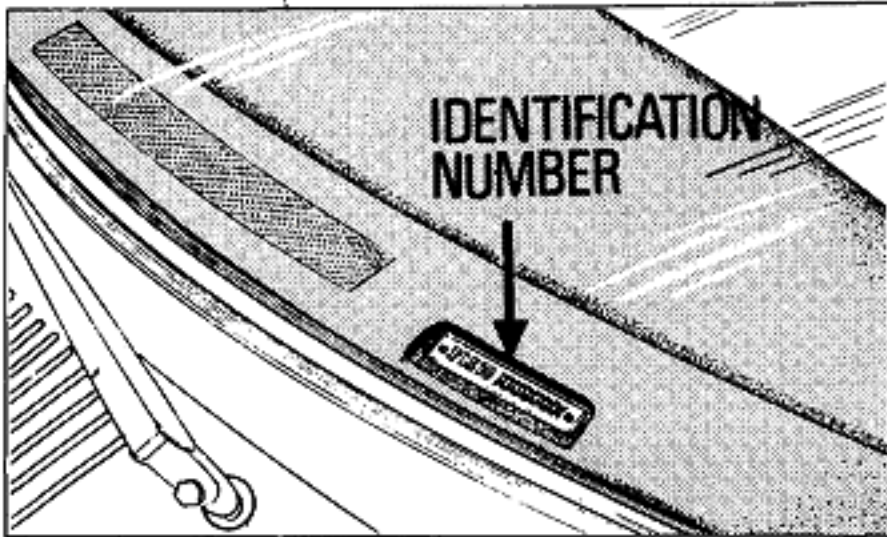


Fig. GI-2 Identification number plate

### Color code number label

The color code number label is stamped on the right, upper side of radiator core support. See Figure GI-4.

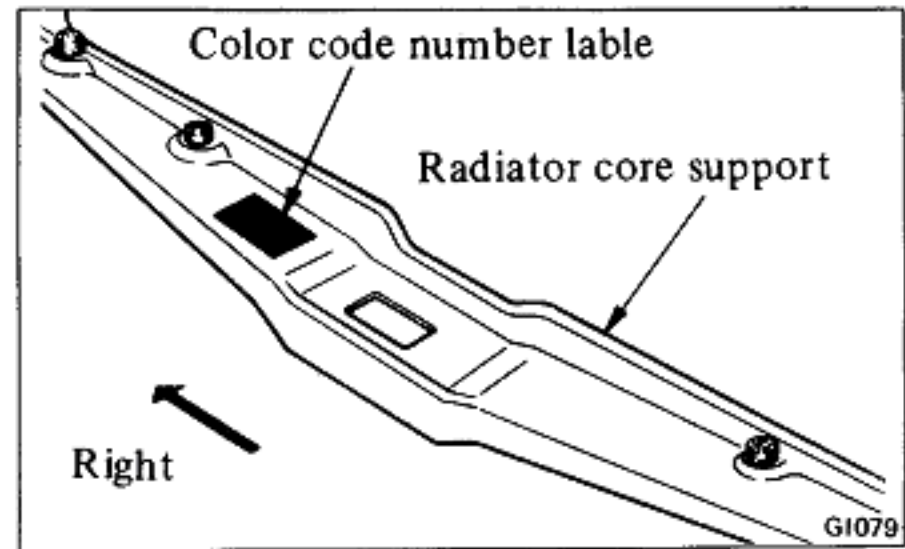


Fig. GI-4 Color code number label

### Engine serial number

The engine serial number is stamped on the rear right side of cylinder block, at cylinder head contact face.

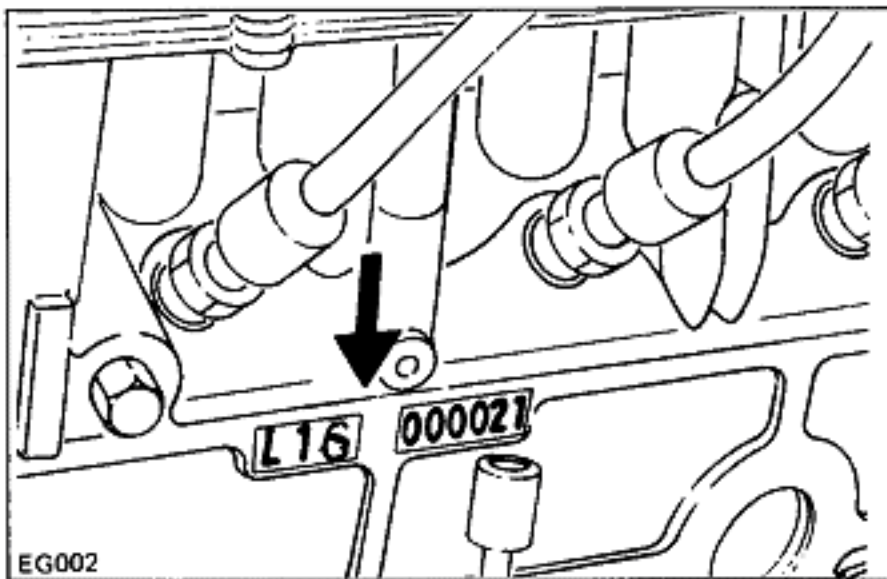


Fig. GI-3 Engine serial number location

## GENERAL INFORMATION

### APPROXIMATE REFILL CAPACITY

	U.S. measure	Imper. measure	Liter
Fuel tank	11 7/8 gal	9 7/8 gal	45
Engine cooling system *1	1 7/8 gal	1 1/2 gal	6.8
Engine crankcase *2	4 1/2 qt	3 3/4 qt	4.3
Manual transmission	3 5/8 pt	3 pt	1.7
Automatic transmission *3	5 7/8 qt	4 7/8 qt	5.5
Differential carrier	1 5/8 pt	1 3/8 pt	0.75
Steering gear box	3/4 pt	5/8 pt	0.33

\*1 Includes 7/8 U.S.pt (3/4 Imper.pt, 0.4 liter) for heater.

\*2 Includes 1/2 U.S.qt (1/2 Imper.qt, 0.5 liter) for oil filter.

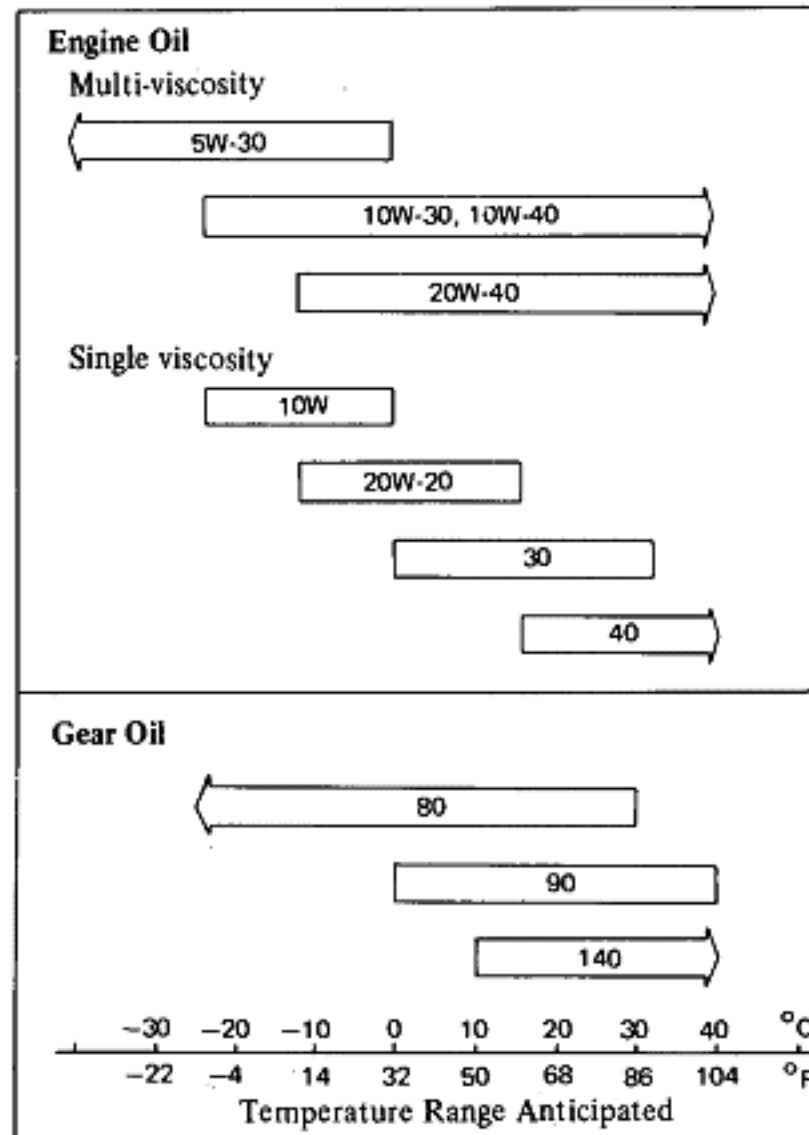
\*3 Includes 4 1/4 U.S.qt (3 1/2 Imper.qt, 4.0 liters) for torque converter.

### RECOMMENDED PETROL (FUEL)

Use a non-lead or low-lead gasoline with a minimum octane rating of 87 — the average of the Research and Motor Octane Numbers in the U.S. When the figure

is based on the Research Octane Number, use a gasoline with a minimum octane rating of 91 (RON) in Canada.

### RECOMMENDED LUBRICANTS



## GENERAL INFORMATION

### LUBRICANT SPECIFICATIONS

(For U.S.A. and Canada) from June 1, 1972.

Item		Specifications	Remarks
Gasoline engine oil		SAE Classification SD or SE	Furthermore refer to SAE recommended viscosity table. See Page GI-3.
Gear oil	Transmission and steering	API GL-4	_____
	Differential	API GL-5	_____
Automatic T/M fluid		Type DEXRON	_____
Multipurpose grease		NLGI 2	Lithium soap base
Brake and clutch fluid		DOT 3	_____
Antifreeze		_____	Permanent anti-freeze (Ethylene glycol base)

## NISSAN LONG LIFE COOLANT (L.L.C.)

The cooling system has been filled at factory with the Long Life Coolant (L.L.C.) and water for all season protection.

This coolant provides freezing protection to  $-15^{\circ}\text{C}$  ( $-5^{\circ}\text{F}$ ) in a 30% Long Life Coolant ratio and also protects the engine against corrosion. If outside temperature falls down to  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ ), fill a 50/50 mixture of the Long Life Coolant and water. The Long Life Coolant is an ethylene glycol base product containing any glycerine, ethyl or methyl alcohol. The

Long Life Coolant must not be mixed with any other product scale nor sediment accumulated in water jacket or radiator adversely affects heat radiation efficiency. When the coolant is changed, the system should be thoroughly flushed out by opening the two drain plugs, one at the bottom of the radiator and the other at the left side of the cylinder block until clean water comes out. Always use clean, soft water in the radiator for filling the radiator.

Percent concentration	Boiling point		Freeze protection
	Sea level	0.9 kg/cm <sup>2</sup> cooling system pressure	
30%	106°C (221°F)	124°C (255°F)	-15°C (5°F)
50%	109°C (228°F)	127°C (261°F)	-35°C (-31°F)

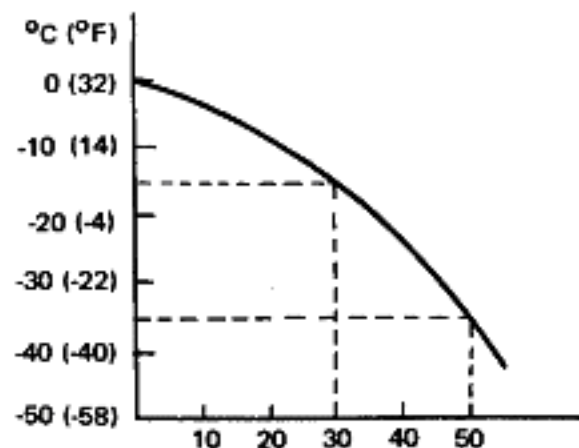


Fig. GI-5 Protection concentration

## GENERAL INFORMATION

# LIFTING POINTS AND TOWING

### LIFTING POINTS

#### Pantograph jack

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

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

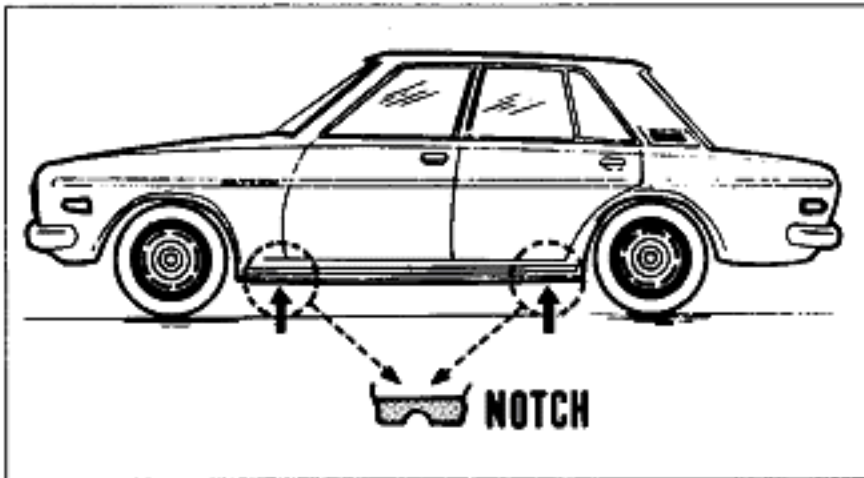


Fig. GI-6 Jack up points

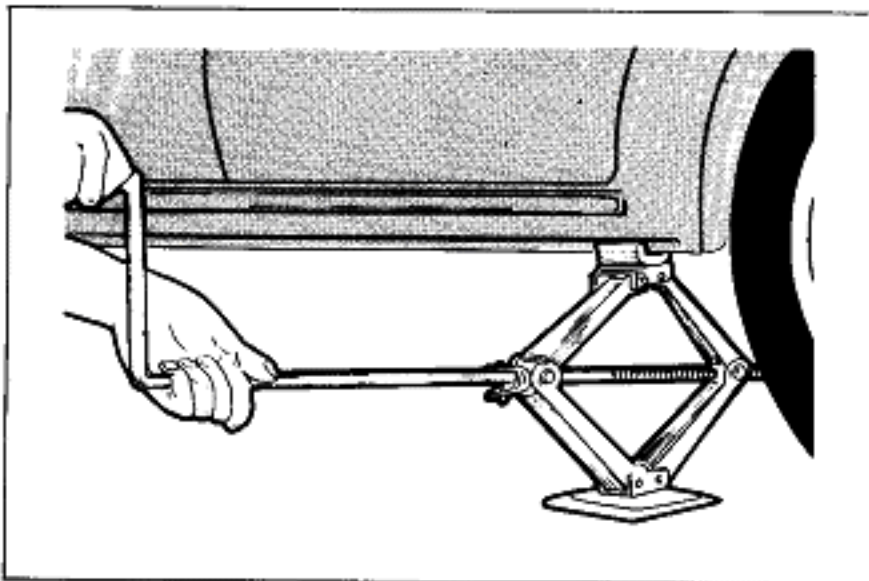


Fig. GI-7 Jack up

#### Garage jack

Note: 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 vehicle, 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.
3. Jack up the vehicle gently just high enough to place the safety stands under both the side members. Place the stands.
4. Release the jack slowly.

#### Rear side

1. When jacking up the rear of the vehicle, place the chocks at the front side of the front wheels to hold them.
2. Apply the garage jack under the suspension member.
3. Jack up the vehicle gently just high enough to place the safety stands under the rear suspension member of third cross member. Place the stands.
4. Release the jack slowly.

#### Supportable point

1. Front suspension member
2. First half of front side member
3. Rear suspension mounting member
4. Latter half of differential case mounting member
5. Third cross member (Do not add force to the flange.)

- Notes: a. Support there as wide apart as possible.  
b. Do not support following parts.

Front and rear floor panel  
Spare tire housing  
Rear floor member



## GENERAL INFORMATION

### Hang Up

Hang up at front and rear bumper, but use wire rope as shown in Figure GI-7 so as to prevent the body from damaging. Do not hang up abruptly.

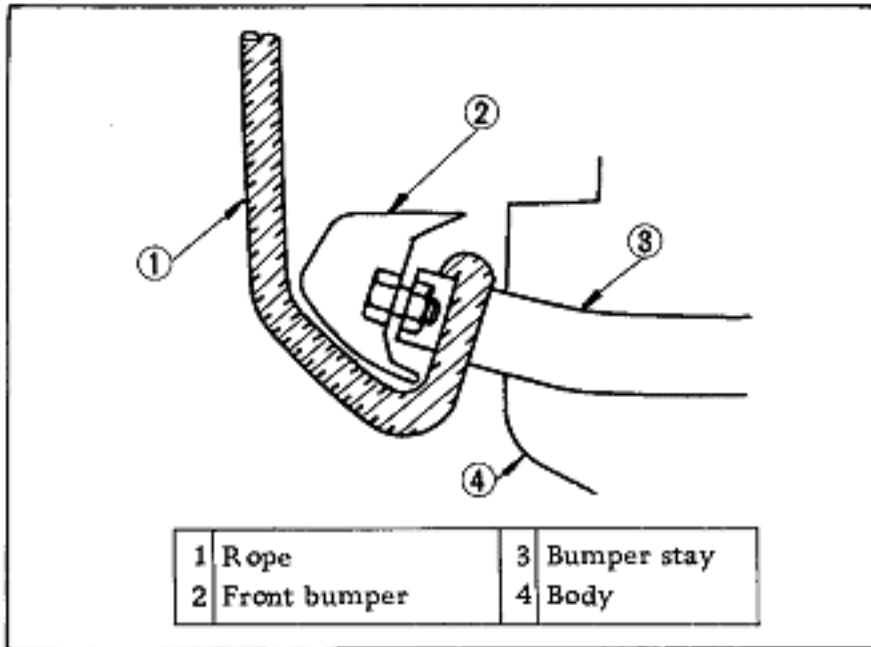


Fig. GI-8 Hang up

### TOWING

#### Manual transmission model

When the car is towed forward, connect the rope securely to the tension rod bracket or the front bumper stay as shown in Figure GI-8.

To tow another car, connect a rope to the rear bumper stay by using a waste to the bumper edge.

- Notes:
- A towing rope should not be connected to any other positions than those described above.
  - Avoid applying load suddenly to the rope so as to prevent damage.

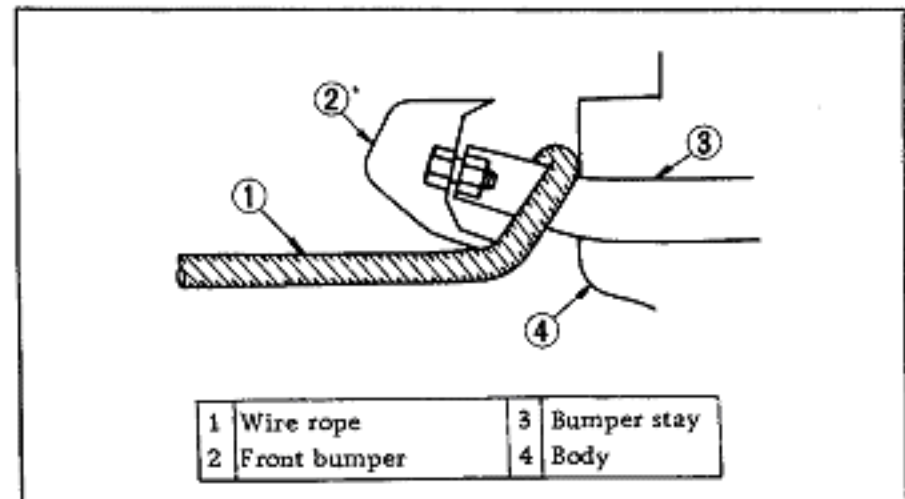


Fig. GI-9 Towing

#### Automatic transmission model

The car may be towed safely with its rear wheels on the ground with the select lever in "N" (Neutral) position at speed of less than 30 km/h (19 MPH). However, the propeller shaft must be disconnected or the car must be towed with its front wheels on the ground under the following conditions:

- Tow speed of more than 30 km/h (19 MPH).
- Car must be towed for a long distance (over 10 km or 6 miles).
- Transmission is not operating properly.

If car is towed with its front wheels on the ground, the steering wheel should be secured to maintain a straight ahead position.

#### Tie-down

The front tie-down hook is located on both the first crossmember and the rear tie-down hook is located on both the rear side member securing with the rear bumper stay.

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## SECTION ET

ET

# ENGINE TUNE-UP

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## BASIC MECHANICAL SYSTEM

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### ADJUSTING INTAKE AND EXHAUST VALVE CLEARANCE

Valve clearance adjustment is impossible when the engine is in operation:

1. Loosen pivot locking nut and turn pivot screw until the specified clearance is obtained while cold.

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

2. Warm up engine for at least several minutes and stop it. Measure valve clearance while hot. If out of specifications, adjust as necessary.

#### Valve clearance

Unit: mm (in)

		Unit: mm (in)
Cold	Intake	0.20 (0.008)
	Exhaust	0.25 (0.010)
Warm	Intake	0.25 (0.010)
	Exhaust	0.30 (0.012)

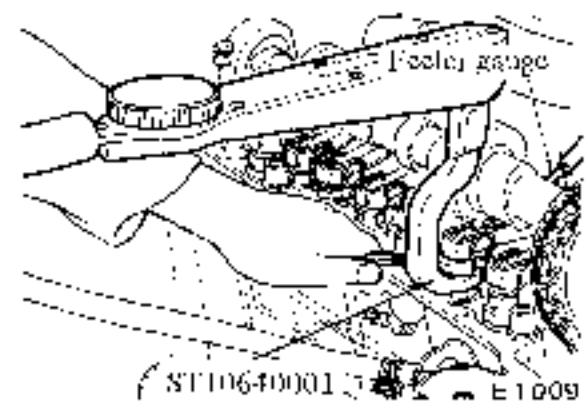


Fig. ET-1 Adjusting valve clearance

### CHECKING AND ADJUSTING DRIVE BELT

1. Check for cracks or damage. Replace if necessary.
2. Adjust belt tension. It is correct if deflection is 8 to 12 mm (0.315 to 0.472 in) when thumb pressure (10 kg (22.0 lb)) is applied midway between fan and alternator pulleys.

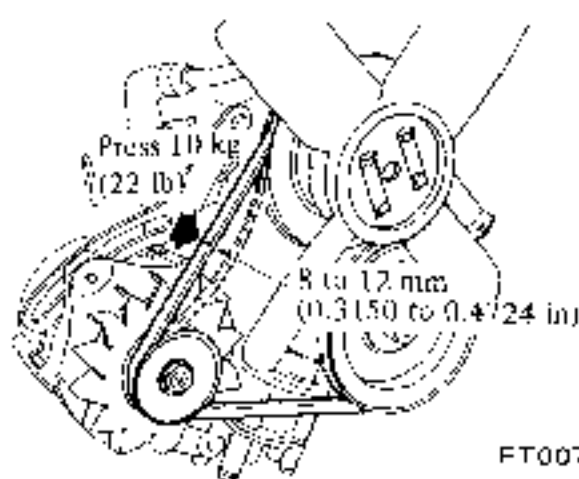


Fig. ET-2 Drive belt tension

### RETIGHTENING CYLINDER HEAD BOLTS, MANIFOLD NUTS AND CARBURETOR SECURING NUTS

Tightening torque:

- Cylinder head bolts
- 1st turn
- 4.0 kg-m (28.9 ft-lb)
- 2nd turn
- 6.0 kg-m (43.4 ft-lb)

- 3rd turn
- 6.5 to 8.5 kg-m
- (47.0 to 61.5 ft-lb)

- Manifold nuts
- 1.2 to 1.6 kg-m
- (8.7 to 11.6 ft-lb)

- Carburetor nuts
- 0.5 to 1.0 kg-m
- (3.6 to 7.2 ft-lb)

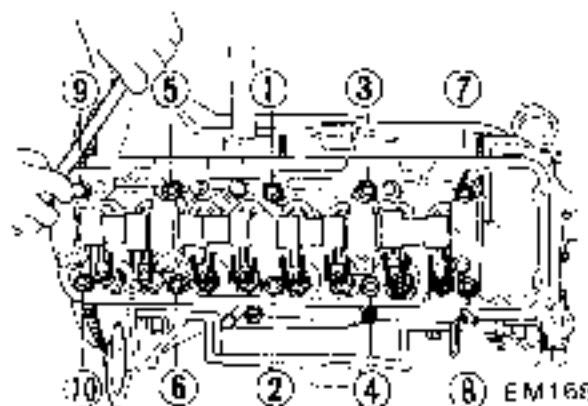


Fig. ET-3 Tightening sequence

### CHECKING ENGINE OIL

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

Notes:

- 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.

## EMISSION CONTROL AND TUNE-UP

Engine oil capacity  
(including oil filter)

Maximum (H level)  
4.3 ℓ (4 ½ U.S. qts.,  
3 ¾ Imper. qts.)

Minimum (L level)  
3.3 ℓ (3 ½ U.S. qts.,  
2 ⅞ Imper. qts.)

### REPLACING OIL FILTER

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

1. Check for oil leaks past gasketed flange. If any leakage is found, retighten just enough to stop leakage. If retightening is no longer effective, replace 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 (L.L.C.)

#### Nissan long life coolant

L.L.C. is an ethylene glycol base product containing chemical inhibitors to protect the cooling system from rusting and corrosion. The L.L.C. does not contain any glycerine, ethyl or 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 L.L.C. must not be mixed with other product. This coolant can be used throughout the seasons of the year.

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

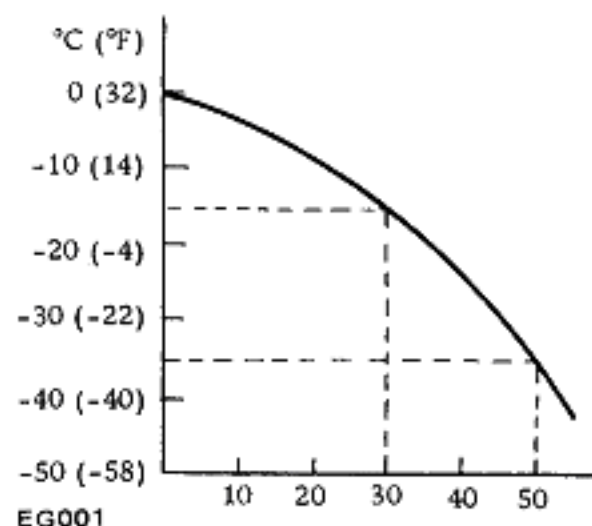
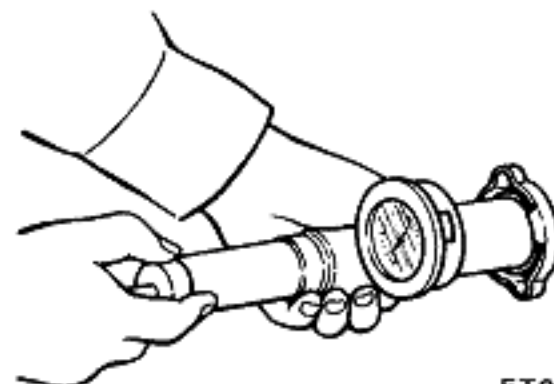


Fig. ET-4 Protection concentration

Percent concentration	Boiling point		Freeze protection
	Sea level	0.9 kg/cm <sup>2</sup> cooling system pressure	
30%	106°C (221°F)	124°C (255°F)	-15°C (5°F)
50%	109°C (228°F)	127°C (261°F)	-35°C (-31°F)

### CHECKING COOLING SYSTEM HOSES AND CONNECTIONS

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



ET012

Fig. ET-5 Testing radiator cap

#### Inspection of radiator cap

Apply reference pressure [0.9 kg/cm<sup>2</sup> (12.8 psi)] to radiator cap by means of a cap tester to see if it is satisfactory. Replace cap assembly if necessary.

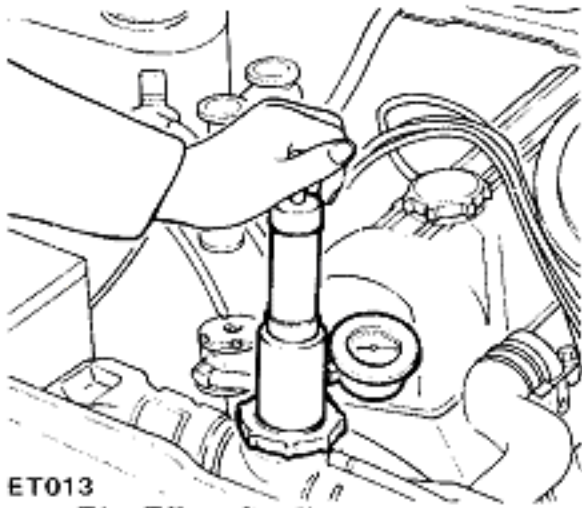
#### Cooling system pressure test

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.

#### Water capacity

	610	620	510
Without heater	6.0 ℓ (1 ⅝ U.S. gal., 1 ¾ Imper. gal.)	5.4 ℓ (1 ⅜ U.S. gal., 1 ¼ Imper. gal.)	6.4 ℓ (1 ¾ U.S. gal., 1 ⅝ Imper. gal.)
With heater	6.5 ℓ (1 ¾ U.S. gal., 1 ⅞ Imper. gal.)	6.0 ℓ (1 ⅝ U.S. gal., 1 ⅞ Imper. gal.)	6.8 ℓ (1 ⅞ U.S. gal., 1 ½ Imper. gal.)

## EMISSION CONTROL AND TUNE-UP



ET013  
Fig. ET-6 Cooling system pressure test

### CHECKING VACUUM FITTINGS, HOSES AND CONNECTIONS

Check fittings and hoses for loose connections or any other defects fittings and hoses for loose connections. Retighten as necessary; replace any defective parts.

### CHECKING ENGINE COMPRESSION

When it becomes necessary to check cylinder compression, it is es-

sential to remove all spark plugs. The purpose of this test is to determine whether there is excessive leakage past the piston rings, head gasket, etc. To test, the engine should be heated to the operating temperature and throttle and choke valves opened.

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.

Low compression in cylinders can result from worn piston rings. This trouble may usually be accompanied by excessive fuel consumption.

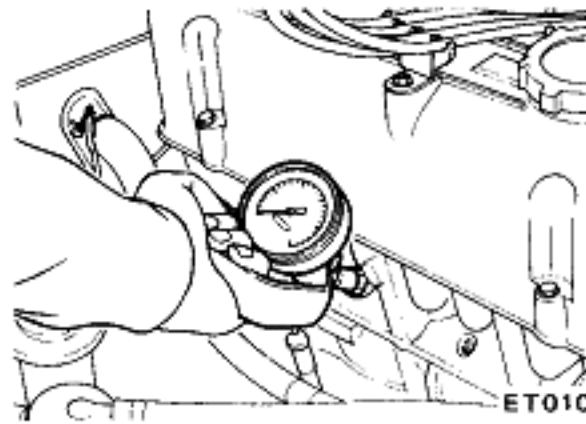


Fig. ET-7 Testing compression pressure

### Test result

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 rings are defective.
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, this could be leakage past the gasketed surface.

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

	Compression pressure $\text{kg/cm}^2$ (psi)/at rpm
Standard	12.0 (171)/350
Minimum	9.0 (128)/350

## IGNITION AND FUEL SYSTEM

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## CHECKING BATTERY

Check electrolyte level in each battery cell.

1. Unscrew each filler cap and inspect fluid level. If the fluid is low, add distilled water to bring the level up approximately 10 to 20 mm (0.394 to 0.787 in) above the plates. Do not overfill.
2. Measure the specific gravity of battery electrolyte.

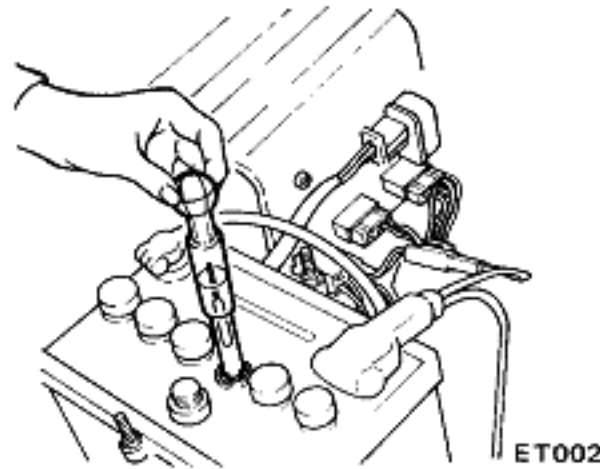


Fig. ET-8 Checking specific gravity of battery electrolyte

	Permissible value	Full charge value (at 20°C (68°F))
Frigid climates	Over 1.22	1.28
Tropical climates	Over 1.18	1.23
Other climates	Over 1.20	1.26

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.

## CHECKING AND ADJUSTING IGNITION TIMING

### Adjusting ignition timing

1. Check spark plugs and distributor breaker points for condition.
2. Thoroughly wipe off dirt and dust from timing mark on crank pulley and timing indicator on and front cover.

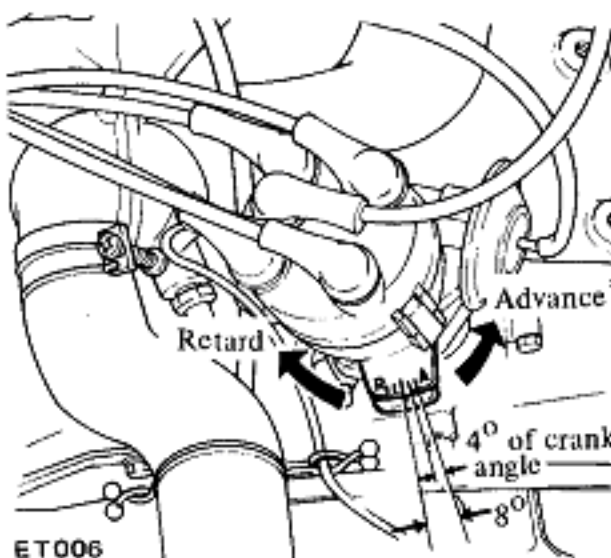


Fig. ET-9 Adjusting ignition timing

3. Warm up engine sufficiently.
4. Install a timing light on No. 1 cylinder spark plug wire, and install a tachometer.
5. Set idling speed to approximately 800 rpm.
6. Check ignition timing if it is 5° B.T.D.C. (Before Top of Dead Center) by the use of timing light.

If necessary, adjust it as follows;

1. Loosen set screw to such an extent that distributor can be moved by hand.
2. Adjust ignition timing to 5° B.T.D.C.
3. Lock distributor set screw, and make sure that timing is correct.

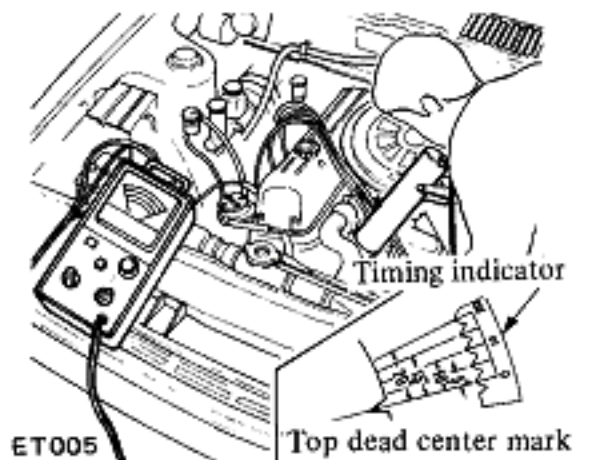


Fig. ET-10 Checking ignition timing

Ignition timing:  
5° (Retard side)  
12° (Advance side)

## CHECKING OR REPLACING DISTRIBUTOR BREAKER POINTS, CONDENSER AND SPARK PLUGS

### Distributor breaker points

Check the distributor breaker points for abnormal pitting and wear. Replace if necessary. Make sure they are in correct alignment for full contact and that point dwell and gap are correct. Clean and apply distributor grease to the cam and wick.

**Note:** Do not apply grease excessively.

Point gap  
0.45 to 0.55 mm  
(0.0177 to 0.0217 in)  
Dwell angle  
49 to 55 degrees

Refer to ET-14, dual point distributor.

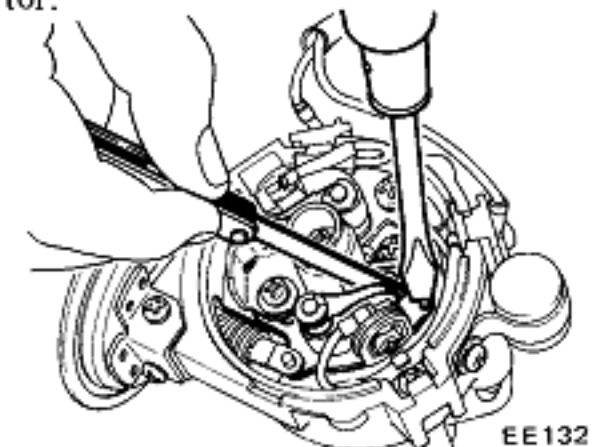


Fig. ET-11 Checking distributor point gap

## Condenser

1. Clean outlet of condenser lead wire, and check for loose set screw. Retighten if necessary.
2. Check condenser capacity with a capacity meter. Condenser insulation resistance may be also checked using a tester by adjusting its range to measure large resistance value. When condenser is normal, the tester pointer swings largely and rapidly, and moves gradually back to the infinite side. When the pointer does not stay still or it points zero in resistance, replacement is necessary.

### Condenser capacity

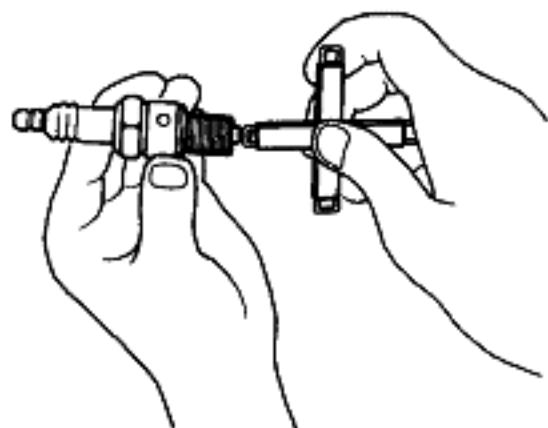
Retard side  $0.05 \mu F$   
(Micro Farad)

Advance side  $0.22 \mu F$   
(Micro Farad)

Condenser insulation resistance  
 $5M\Omega$  (Mega ohms)

## Spark plugs

Remove and clean plugs in a sand blast cleaner. Inspect each spark plug. Make sure that they are of the specified heat range. Inspect insulator for cracks and chips. Check both center and ground electrodes. If they are excessively worn, replace with new spark plugs. File center electrode flat. Set the gap to 0.7 to 0.8 mm (0.028 to 0.031 in) using the proper adjusting tool. Tighten plugs to 1.5 to 2.0 kg-m (11.0 to 15.0 ft-lb) torque.



EE080

Fig. ET-12 Checking spark plug point gap

## CHECKING DISTRIBUTOR, IGNITION WIRING AND IGNITION COIL

### Distributor

Check the centrifugal mechanical parts for loose connection, sticking of spring, or excessive or local wear.

If found to be in good condition, then check advance characteristics using a distributor tester. For test procedure and reference data, refer to item "Distributor" in Section EE.

If vacuum advance unit fails to operate properly, check the following items and correct as necessary:

1. Check vacuum inlet for signs of leakage at connection. If necessary, retighten or replace with a new one.
2. Check vacuum diaphragm for air leak.

If leak is found, replace diaphragm with a new one.

3. Inspect breaker plate for smooth operation.

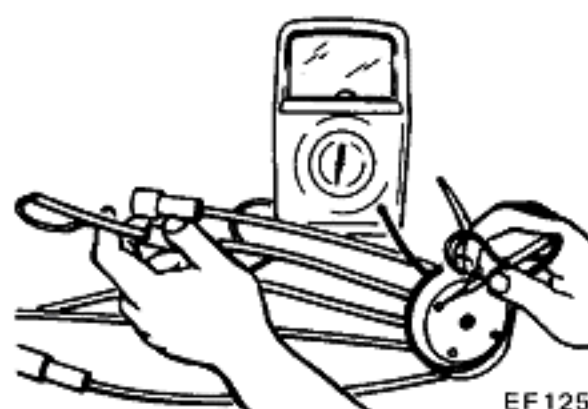
If plate does not move smoothly, this could be due to sticky steel balls or pivot. Apply grease to steel balls or, if necessary, replace breaker plate as an assembly. Refer to section EE-28. Distributor as to vacuum advance characteristics.

### Ignition wiring

Use an ohmmeter to check resistance of secondary cables. Disconnect cables from spark plugs and install the proper adaptor between cable and spark plug. Remove distributor cap from distributor with secondary cables attached. Do not remove cables from cap.

Check resistance of one cable at a time.

Connect ohmmeter between spark plug adaptor and corresponding electrode inside cap. If resistance is more than 30,000 ohms remove cable from cap and check cable resistance only. If resistance is still more than 30,000 ohms, replace cable assembly.



EF125

Fig. ET-13 Checking high tension cable

### Ignition coil

Check ignition coil for appearance, oil leak or sparking performance. Refer to Section EE-34, ignition coil.

## CHECKING DISTRIBUTOR CAP AND ROTOR

**Note:** This operation is to be performed while checking distributor points. Inspect distributor cap for cracks and flash over.

External surfaces of all parts of secondary system must be cleaned to reduce possibility of voltage loss. All wires should be removed from distributor cap and coil so that terminals can be inspected and cleaned. Burned or corroded terminals indicate that wires are not fully seated, which causes arcing between end of wire and terminal. When replacing wires in terminal, be sure they are fully seated before pushing rubber nipple down over tower. Check distributor rotor for damage, and distributor cap for cracks.

## ADJUSTING CARBURETOR IDLE-RPM AND MIXTURE RATIO

Idle mixture adjustment requires the use of a "CO" meter. When preparing to adjust idle mixture, it is

## EMISSION CONTROL AND TUNE-UP

essential to have the meter thoroughly warmed and calibrated.

1. Warm up engine sufficiently.
2. Continue engine operation for one minute at idling speed.
3. Adjust throttle adjusting screw so that engine speed is 800 rpm (in "N" range for automatic transmission).
4. Check ignition timing, if necessary adjust it to the specifications. (5°/800 rpm, retard side)
5. Adjust idle adjusting screw so that "CO" percentage is  $1.5 \pm 0.5\%$ .
6. Repeat the procedures as described in items 3 and 5 above so that "CO" percentage is  $1.5 \pm 0.5\%$  at 800 rpm.

### Caution:

- a. On automatic transmission equipped model, check should be done in the "D" range.

Be sure to apply parking brake and to lock both front and rear wheels with wheel chocks.

- b. Hold brake pedal while stepping down on accelerator pedal. Otherwise car will rush out dangerously.

7. On automatic transmission equipped model, make sure that the adjustment has been made with the selector lever in "N" position.

And then check the specifications with the lever in "D" position. Insure that "CO" percent and idle speed are as follows.

Idling rpm	650
"CO" percentage	$1.5 \pm 0.5\%$

Readjust by turning in or out throttle adjusting screw or idle adjusting screw if still out.

### Notes:

- a. Do not attempt to screw down idle adjusting screw completely to avoid damage to tip, which will tend to cause malfunctions.
- b. After idle adjustment has been made, shift the lever to "N" or "P" range for automatic transmission.
- c. Remove wheel chocks when running.

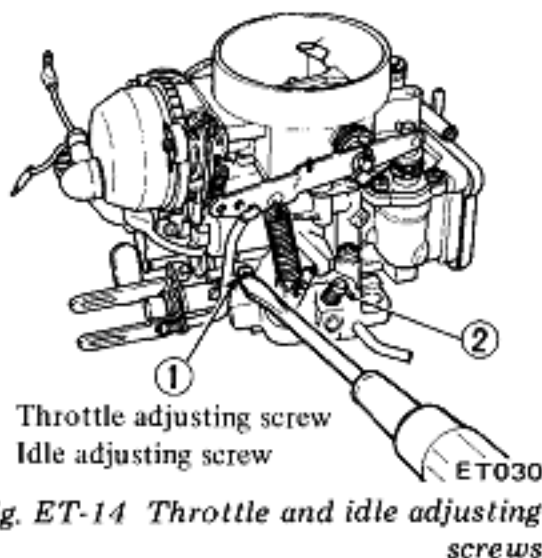


Fig. ET-14 Throttle and idle adjusting screws

### Idle limiter cap

Do not remove this idle limiter cap unless necessary. If this unit is removed, it is necessary to re-adjust it at the time of installation. To adjust proceed as follows.

1. After adjusting throttle or idle speed adjusting screws, 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 further turn 1/8 rotation in the "CO-RICH" direction.

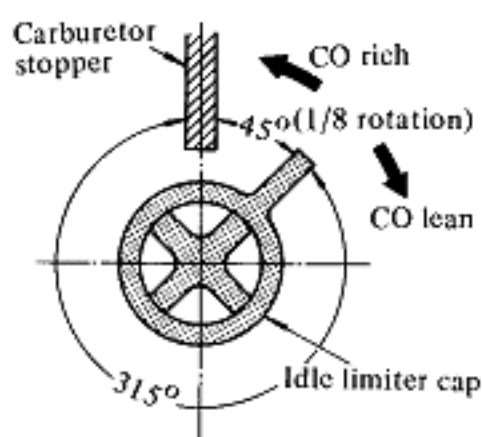


Fig. ET-15 Setting idle limiter cap

### CHECKING AND ADJUSTING DASH POT (AUTOMATIC TRANSMISSION ONLY)

Proper contact between throttle lever and dash pot stem provides normal dash pot performance. Adjustment of the proper contact can be

made by dash pot set screw.

If normal set can not be obtained between dash pot stem and throttle arm, rotate dash pot to the proper position.

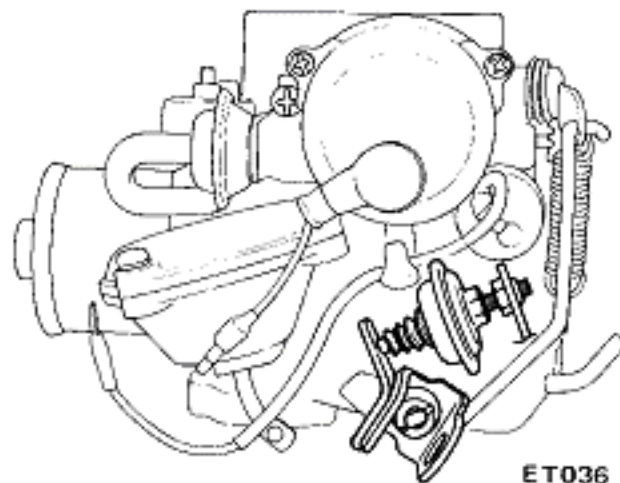


Fig. ET-16 Dash pot adjustment

### Installed on engine

1. It is necessary that the idling speed of engine and mixture have been well turned up and engine is sufficiently warm.
2. Turn throttle valve by hand, and read engine speed when dash pot just touches the stopper lever.
3. Adjust the position of dash pot by turning nut until engine speed is in the range of 1,600 to 1,800 rpm.
4. Then fasten loosened lock nut.
5. Make sure that the engine speed is smoothly reduced from 2,000 to 1,000 rpm in about three seconds.

### CHECKING CARBURETOR RETURN SPRING

Check throttle return spring for cracks, squareness or deformation, if necessary, replace with a new one.

### CHECKING CHOKE MECHANISM (CHOKE VALVE 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. Check bimetal cover setting. Index mark on bimetal cover is usually set at center of scale.

**Note:** When some-what over-choked, turn bi-metal cover clockwise slightly.

3. Every day, before starting engine, depress the accelerator pedal to see if choke valve is closed automatically.

If it fails to be closed, the chances are that link movement is unsmooth, or that bimetal is out of order. Refer to "Carburetor" in section LF (Page EF-15).

### CHECKING ANTI-DIESELING SOLENOID

If engine will crank but will not start, check the operation of anti-dieseling solenoid. Check to see if the solenoid issues click sounds with the ignition key turning on. Disconnect and connect the solenoid wiring repeatedly. If the click sound can not be heard and the harness is in good condition, replace the solenoid with a new one.

If engine will not stop when ignition switch is turned off, this indicates a striking (closed) solenoid valve, shutting off supply of fuel to engine. If harness is in good condition, replace solenoid as a unit.

To replace, proceed as follows:

### Removal and installation of anti-dieseling solenoid

#### Removal

Solenoid is cemented at factory. Use special tool "ST19150000" to remove a solenoid.

When this tool is not effective, use a pair of pliers to loosen body out of position.

#### Installation

(1) Before installing a solenoid, it is essential to clean all threaded parts of carburetor and solenoid. Supply screws in holes and turn them in two or three pitches.

(2) First, without disturbing the above setting, coat all exposed threads with adhesive the "Stud Lock" of LOCTITE or equivalent.

Then, torque screws to 35 to 55 kg-cm (30 to 48 in-lb) using a special tool "ST19150000."

After installing anti-dieseling solenoid, leave carburetor more than 12 hours without operation.

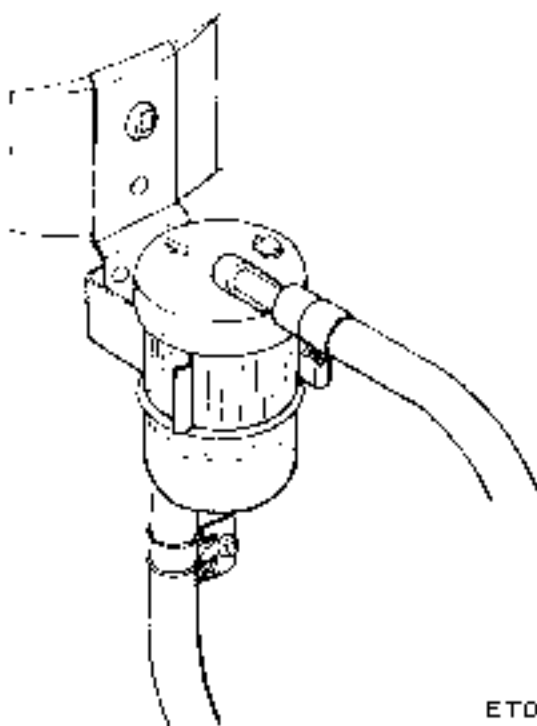
(3) After replacement is over, start engine and check to be sure that fuel is not leaking, and that anti-dieseling solenoid is in good condition.

#### Notes:

- Do not allow adhesive getting on valve. Failure to follow this caution would result in improper valve performance or clogged fuel passage.
- In installing valve, use caution not to hold body directly. Instead, use special tool, tightening nuts as required.
- After installing a new solenoid, check to be certain that there is no leakage, cracks or otherwise deformation.

### REPLACING FUEL FILTER

Check for a contaminated element, and water deposit.



ETD11

Fig. ET 17 Fuel strainer

All engines use a replaceable cartridge type fuel strainer as an assembly.

### CHECKING FUEL LINES (HOSES, PIPINGS, CONNECTIONS, etc.)

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

**SPARK TIMING CONTROL SYSTEM**

**CONTENTS**

DESCRIPTION .....	ET- 9	THERMO-SWITCH .....	ET-13
Manual transmission .....	ET- 9	Testing of thermo-switch .....	ET-13
Automatic transmission .....	ET-11	THROTTLE SWITCH .....	ET-13
FOURTH LAMP SWITCH		Testing of throttle switch .....	ET-13
(MANUAL TRANSMISSION ONLY) .....	ET-13	DUAL POINT DISTRIBUTOR .....	ET-14
Testing of fourth lamp switch .....	ET-13	Checking electric advance control	
		system (Dual point distributor) .....	ET-14

**DESCRIPTION**

In this system two spark timings, namely, "Advance" and "Retard," are provided; these can be used independently by electrical means. Between these two timings there is a phase difference of 7 crank-degrees.

The "Retarded" timing is intended for the operating condition as encountered when driving in urban district while the "Advanced" timing is provided to meet the requirement when driving in the suburbs.

**Manual transmission**

This system consists of a thermo-switch, a throttle switch, a fourth lamp switch, a relay, and a dual-point distributor; and the "Retarded" timing is used to meet the following conditions:

1. The temperature inside the passenger compartment is above 10°C (50°F).
2. The throttle valve is partially opened. (See Table A.)
3. The shift lever is placed in a position other than 4th gear.

Throttle switch is "ON" when throttle switch is below X degree; Table A

	L18 L16 (510)		L16 (620)	
	A/T	M/T	A/T	M/T
Throttle switch opening (X degree)	35 deg	40 deg	45 deg	

The table below shows the operation of each control switch under normal operating condition:

# EMISSION CONTROL AND TUNE-UP

EF126

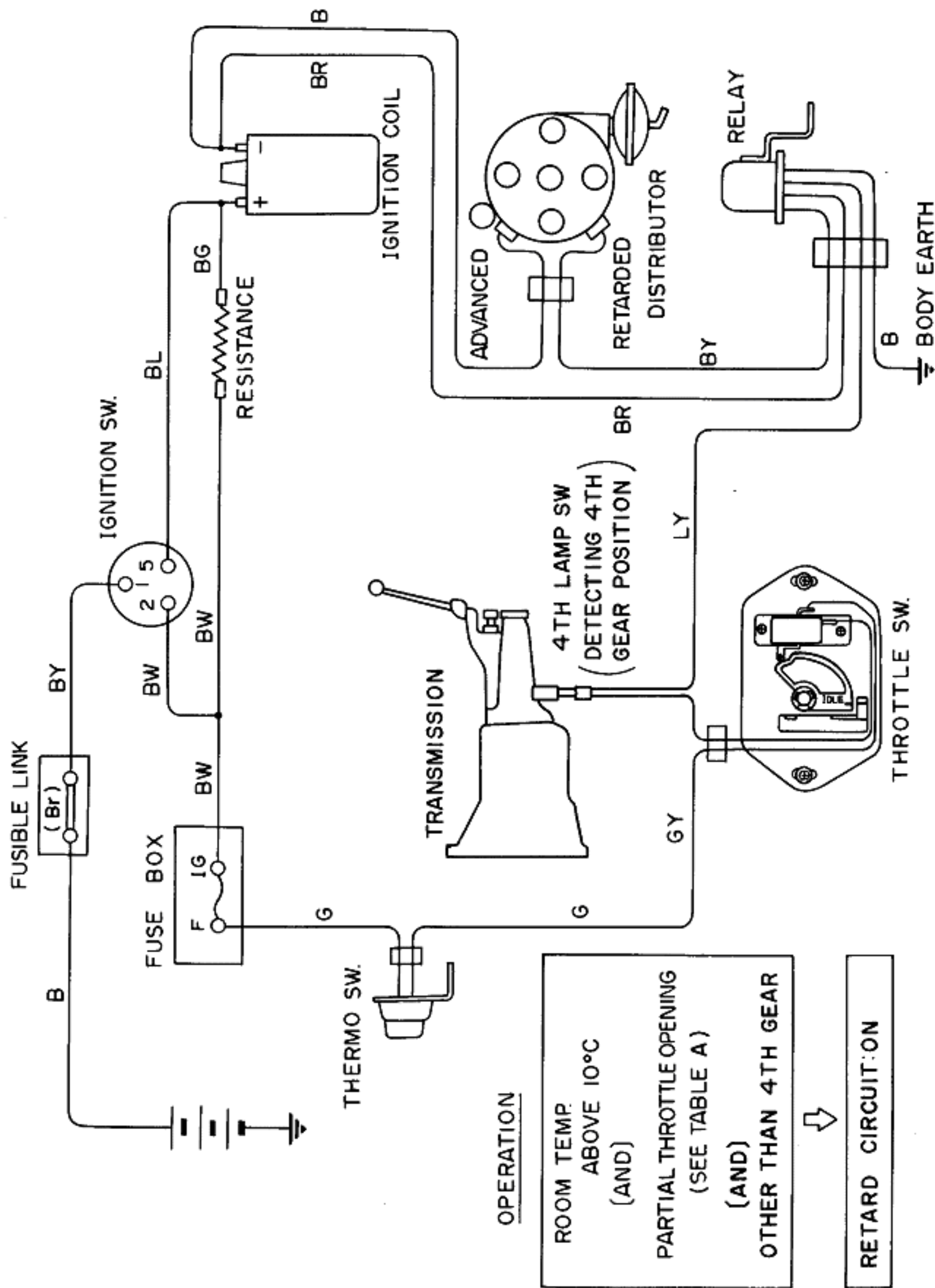


Fig. ET-18 Schematic drawing of spark plug advance control system (Manual Transmission)

## EMISSION CONTROL AND TUNE-UP

### Spark timing control system for Manual Transmission

		Throttle SW	Fourth lamp SW	Spark timing	
				"Advance"	"Retard"
Engine start		ON	ON	—	O
Idling		ON	ON	—	O
4-speed gear	Partial O.T.	ON	OFF	O	—
	Wide O.T.	OFF			
Except 4-speed gear	Partial O.T.	ON	ON	—	O
	Wide O.T.	OFF		O	—

#### Notes:

- a. Operation of the thermo-switch has hysteresis of the bimetal. It opens between 5°C (41°F) and 13°C (55°F) when temperature rises from low to high. It closes above 1°C (34°F) when temperature lowers from high to low.
- b. When the temperature of passenger compartment is below 1°C (34°F), the system is absolutely "Advance Side" whatever other switch is any condition.

### Automatic transmission

This system consists of a thermo-switch, a throttle switch, a relay and a dual-point distributor; and "Retard" timing is used when the following conditions are fulfilled during drive: See Figure ET-19.

1. The temperature inside the pas-

senger compartment is above 10°C (50°F).

2. The throttle valve is partially opened. (See Table A.)

The table below shows the operation of each control switch under normal operation condition: