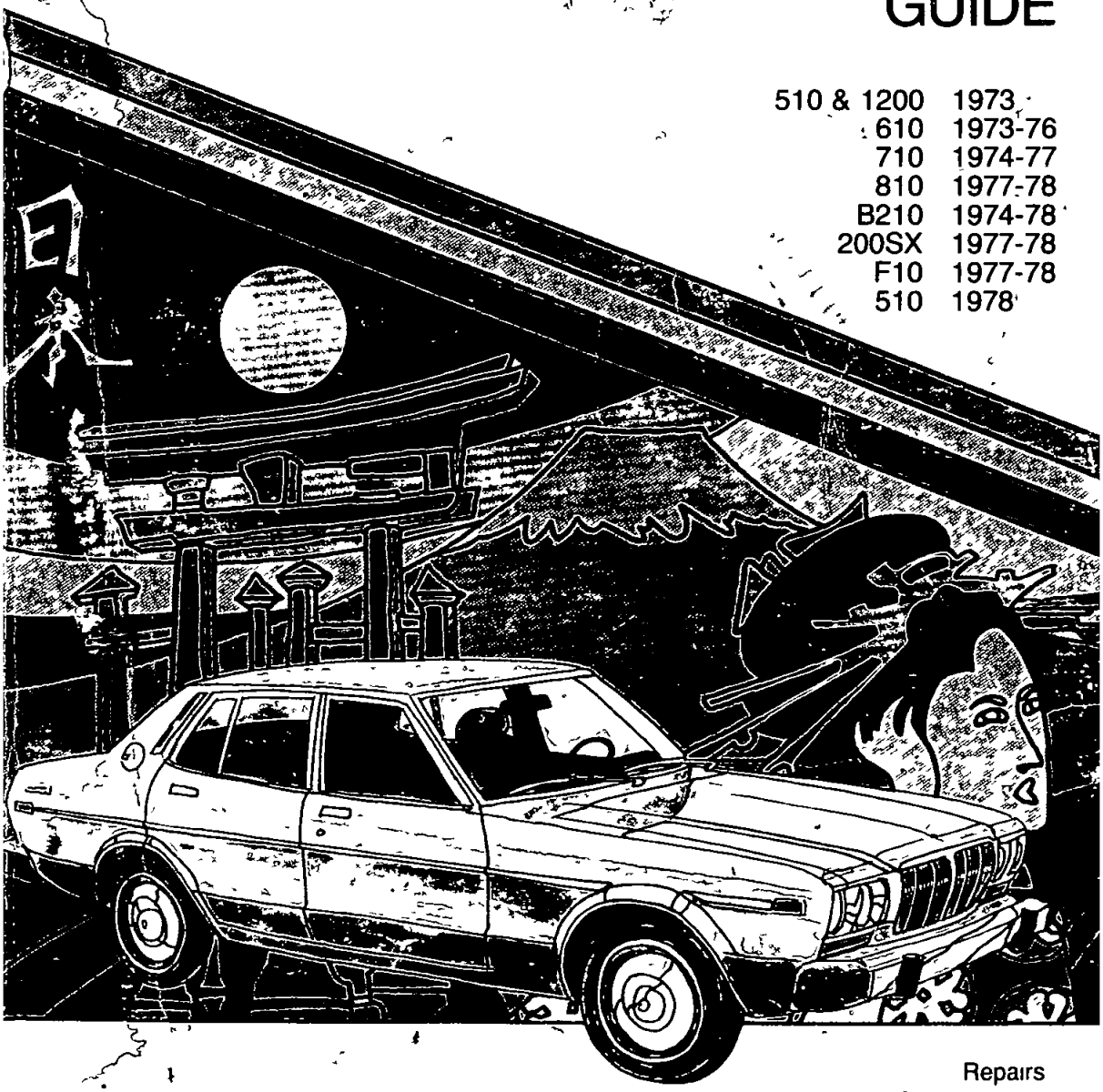
CHAMPION

Chilton's

DATSUN 1973-78

REPAIR & TUNE-UP GUIDE

510 & 1200	1973
610	1973-76
710	1974-77
810	1977-78
B210	1974-78
200SX	1977-78
F10	1977-78
510	1978



Repairs
Specifications
Do-It-Yourself Maintenance

SPARK PLUG

ENGINE

73	1200	
YEAR	CU IN	CARB

CHILTON'S Repair and Tune-Up Guide

Datsun
1973–78

ILLUSTRATED

Prepared by the

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Although the information in this guide is based on industry sources and is as complete as possible at the time of publication, the possibility exists that the manufacturer made later changes which could not be included here While striving for total accuracy, Chilton Book Company cannot assume responsibility for any errors, changes, or omissions that may occur in the compilation of this data

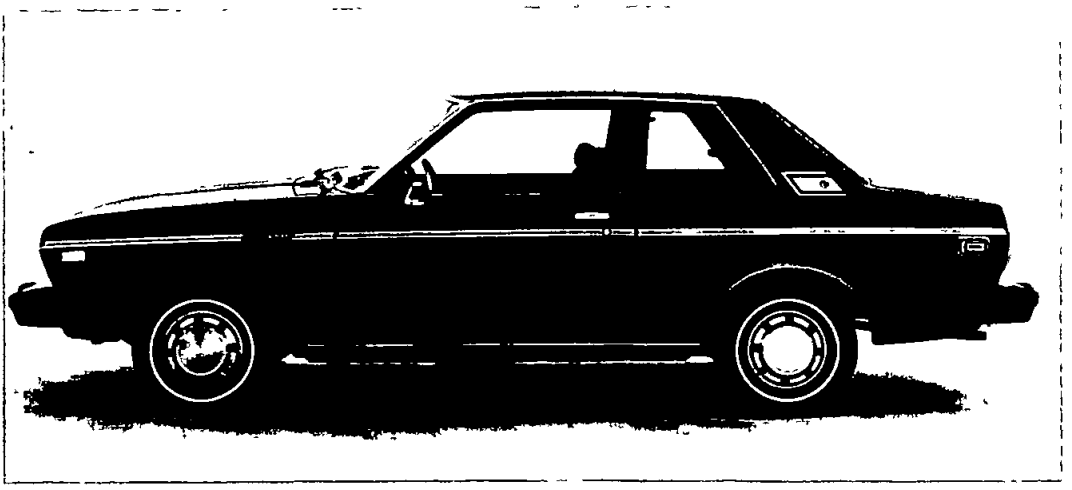
SAFETY NOTICE

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles, as well as the personal safety of those performing repairs This book outlines procedures for servicing and repairing vehicles using safe, effective methods The procedures contain many NOTES, CAUTIONS and WARNINGS which should be followed along with standard safety procedures to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety

It is important to note that repair procedures and techniques, tools and parts for servicing motor vehicles, as well as the skill and experience of the individual performing the work vary widely It is not possible to anticipate all of the conceivable ways or conditions under which vehicles may be serviced, or to provide cautions as to all of the possible hazards that may result Standard and accepted safety precautions and equipment should be used when handling toxic or flammable fluids, and safety goggles or other protection should be used during cutting, grinding, chiseling, prying, or any other process that can cause material removal or projectiles

Some procedures require the use of tools specially designed for a specific purpose Before substituting another tool or procedure, you must be completely satisfied that neither your personal safety, nor the performance of the vehicle will be endangered

Contents



General Information and Maintenance

How To Use This Book

Chilton's Repair and Tune-Up Guide for the Datsun is intended to teach you more about the inner workings of your automobile and save you money in its upkeep The first two chapters will be the most used, since they contain maintenance and tune-up information and procedures The following seven chapters concern themselves with the more complex systems of the Datsun Operating systems from engine through brakes are covered to the extent that we feel the average do-it-yourselfer should get involved Chilton's *Datsun* 2 won't explain rebuilding the transmission for the simple reason that the expertise required and the investment in special tools make this task uneconomical We will tell you how to change your own brake pads and shoes, replace points and plugs, and many more jobs that will save you money, give you personal satisfaction, and help you avoid problems

Before loosening any bolts, please read through the entire section and the specific procedure This will give you the overall view of what will be required as far as tools, supplies, and you There is nothing more frustrating than having to walk to the bus stop on Monday morning because you were short one metric bolt during your Sunday afternoon repair So read ahead and plan ahead

The sections begin with a brief discussion of the system and what it involves Adjustments and/or maintenance are then discussed, followed by removal and installation procedures and then repair or overhaul procedures where they are feasible When repair is considered to be out of your league, we tell you how to remove the part and then how to install the new or rebuilt replacement In this way you at least save the labor costs Backyard repair of such components as the alternator are just not practical

Two basic mechanic's rules should be mentioned here One, whenever the left-side of the car is referred to, it is meant to specify the driver's side of the car Conversely, the right-side of the car means the passenger's side of the car Second, most screws and bolts are removed by turning counterclockwise and tightened by turning clockwise Safety is always the most important rule Constantly be aware

of the dangers involved in working on an automobile and take the proper precautions Use jackstands when working under a raised vehicle Don't smoke or allow an exposed flame to come near the battery or any part of the fuel system Always use the proper tool and use it correctly, bruised knuckles and skinned fingers aren't a mechanic's standard equipment Always take your time and have patience, once you have some experience and gain confidence, working on your car will become an enjoyable hobby

Tools And Equipment

The following list is the basic requirement to perform most of the procedures described in this guide Your Datsun is fastened together with metric screws and bolts, if you don't already have a set of metric wrenches—buy them Standard wrenches are either too loose or too tight a fit on metric fasteners

1 Metric sockets, also a 13/16 in spark plug socket If possible, buy various length socket drive extensions One break in this department is that the metric sockets available in the US will all fit the ratchet handles and extensions you may already have (¼, ⅜, and ½ in drive)

2 Set of metric combination (one end open and one box) wrenches

3 Spark plug wire gauge

4 Flat feeler gauge for breaker points and valve lash checking

5 Slot and phillips heads screwdrivers

6 Timing light, preferably a DC battery hook-up type

7 Dwell/tachometer

8 Torque wrench This assures proper tightening of important fasteners and avoids costly thread stripping (too tight) or leaks (too loose)

9 Oil can filler spout

10 Oil filter strap wrench Makes removal of a tight filter much simpler Never use to install filter

11 Pair of channel lock pliers Always handy to have

12 Two sturdy jackstands—cinder blocks, bricks, and other makeshift supports are just not safe

History

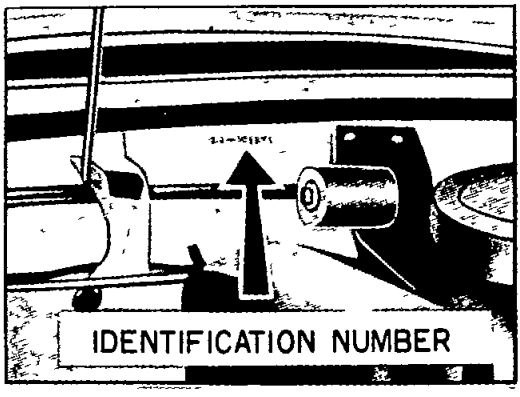
The first Datsun automobile was produced in 1913 The original name of the company, D A T , was derived from the last initials of the three founders Datson, for son of D A T , was used later and finally evolved into Datsun Since the first few cars were imported in 1960, Datsun has moved up to third place in imported sales

This guide covers all Datsun coupes, sedans, and station wagons from 1973 to 1978 Separate books are available for the 240-280Z sports cars, and the pickup trucks Years and models covered in this book are the 510 for 1973, the 1200 for 1973, the B210 from 1974 to 1978, the 610 from 1973 to 1976, and the 710 from 1974 to 1977 Also covered are the F10 for 1977 and 1978, the 810 from 1977 to 1978, the 200SX for 1977 and 1978, and the new 510 for 1978

Serial Number Identification

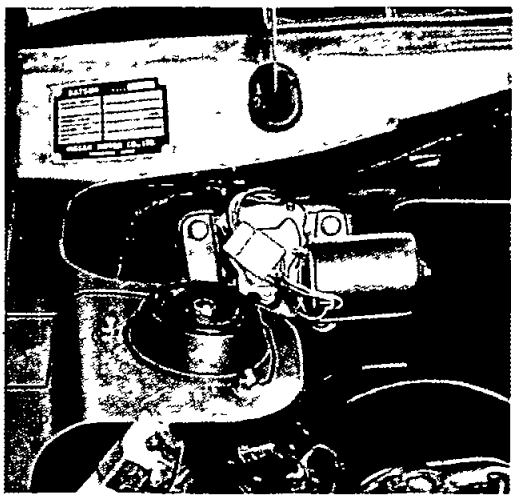
CHASSIS

The chassis serial number is stamped into the firewall The model designation, such as B210, precedes the serial number The chassis number is also located on a dashboard plate which is visible through the windshield



VEHICLE IDENTIFICATION PLATE

The vehicle identification plate is attached to the firewall This plate gives the vehicle model, engine displacement

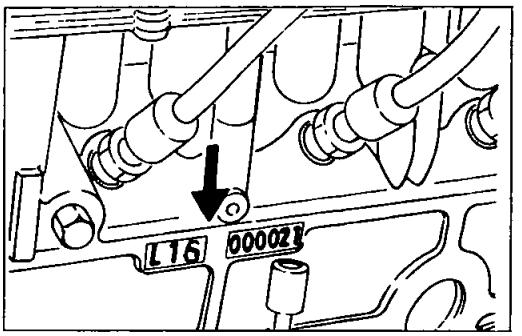


Vehicle identification plate

in cc, SAE horsepower rating, wheelbase, engine number, and chassis number

ENGINE

The engine number is stamped on the right-side top edge of the cylinder block The engine serial number is preceded by the engine model code

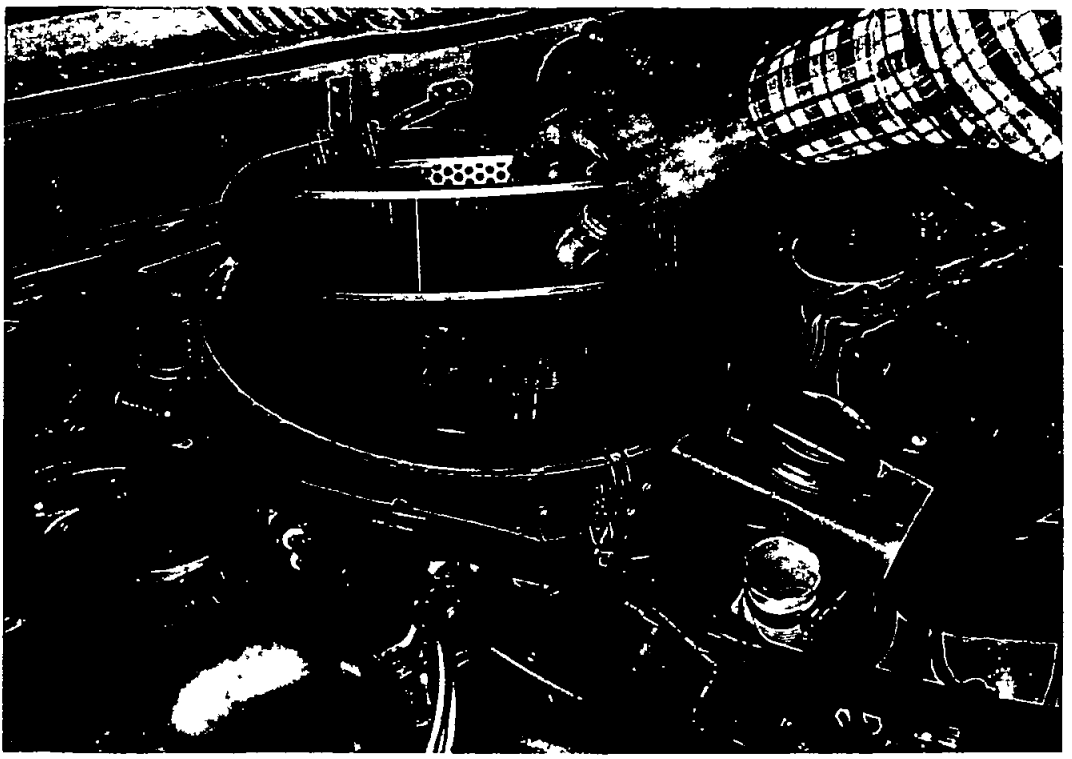


Engine serial number

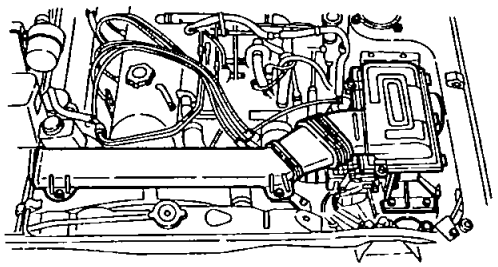
Routine Maintenance

AIR CLEANER

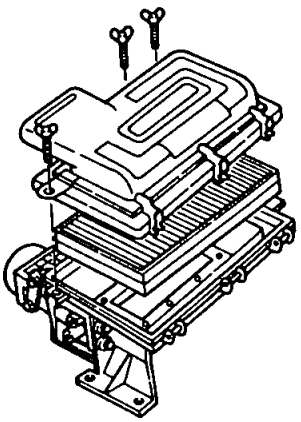
All Datsuns covered in this guide are equipped with a disposable paper cartridge air cleaner element At every tune-up, or sooner if the car is operated in a dusty area, undo the wingnut, remove the housing top, and withdraw the element Check the element Replace the filter if it is extremely dirty Loose dust can sometimes be removed by striking the filter



If the old filter is dirty, replace it



810 air filter



810 air filter showing wing nuts

against a hard surface several times The filter should be replaced every 24,000 miles Before installing either the original or a replacement filter, wipe out the inside of the air cleaner housing with a clean rag or paper towel Install the paper air cleaner filter, seat the top cover on the bottom housing, and tighten the wing nut

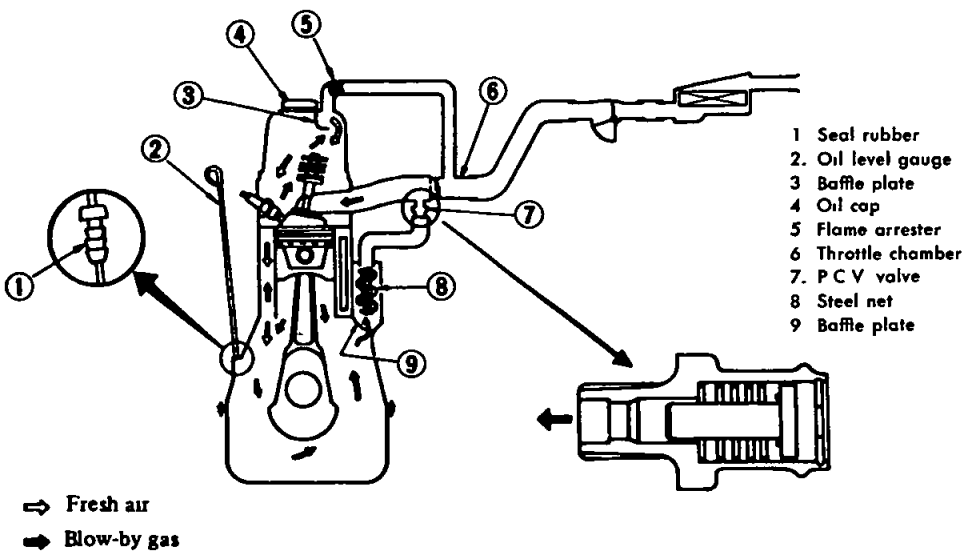
POSITIVE CRANKCASE VENTILATION VALVE

This valve meters crankcase blow-by gases into the intake manifold to be burned with the normal air/fuel mixture The PCV valve should be replaced every 24,000 miles Make sure that all PCV connections are tight Check that the connecting hoses are clear and not clogged Replace any brittle or broken hoses

To replace the valve, which is located in the intake manifold directly below the carburetor

1 Squeeze the hose clamp with pliers and remove the hose

PCV valve (arrow) On the late models, there are so many hoses in the way, the valve is hard to spot



810 PCV valve location—others similar

2 Using a wrench, unscrew the PCV valve and remove the valve.

3 Disconnect the ventilation hoses and flush with solvent

4 Install the new PCV valve and replace the hoses and clamp

EVAPORATIVE EMISSIONS SYSTEM

Check the evaporative emissions system every 12,000 miles Check the fuel and vapor lines for proper connection and correct routing as well as condition Replace damaged or deteriorated parts as necessary Remove and check the operation of the check valve in the following manner

1 With all hoses disconnected from the valve, apply air pressure to the fuel tank side of the valve The air should flow through the valve and exit the crankcase side of the valve If the valve does not operate as outlined above, replace it

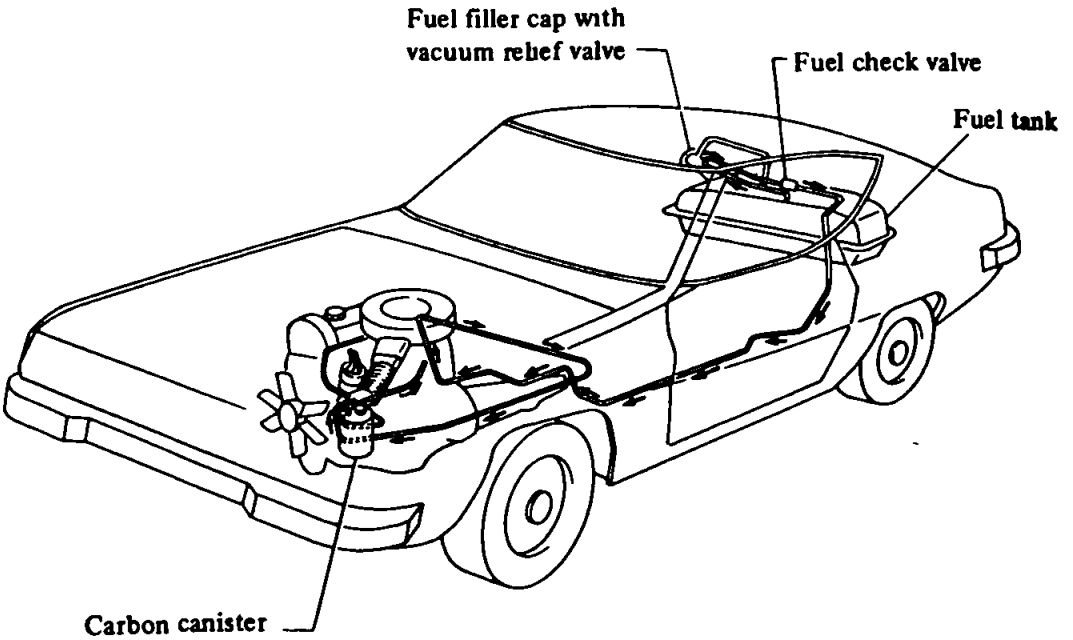
2 Apply air pressure to the crankcase side of the valve Air should not pass to either of the other two outlets

3 When air pressure is applied to the carburetor side of the valve, the air should pass through to exit out the fuel tank and/or the crankcase side of the valve

BELTS

Tension Checking, Adjusting, and Replacement

Push in on the drive belt about midway between the crankshaft pulley and the alternator If the belt deflects more than 9/16 in or less than 3/8 in , it's too



Evaporative emissions schematic

Evaporative emissions canister

loose or too tight If the belt is frayed or cracked, replace it. Adjust belt tension as follows

1 Loosen both nuts on the bracket

2 When replacing the belt, pry the alternator toward the engine and slip the belt from the pulleys

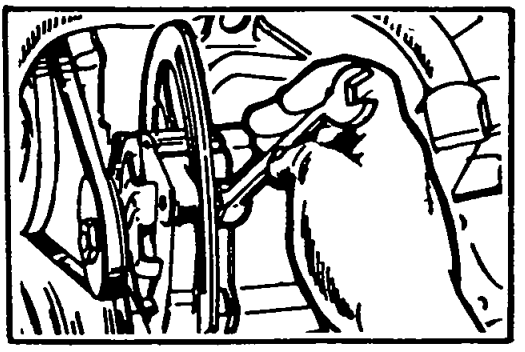
3 Carefully pry the alternator out with a bar, such as a ratchet handle or broom handle, and then tighten the alternator bracket nuts

Checking belt deflection

4 Recheck the tension.

The alternator drive belt also operates the water pump It might be good insurance to carry an extra belt in the trunk.

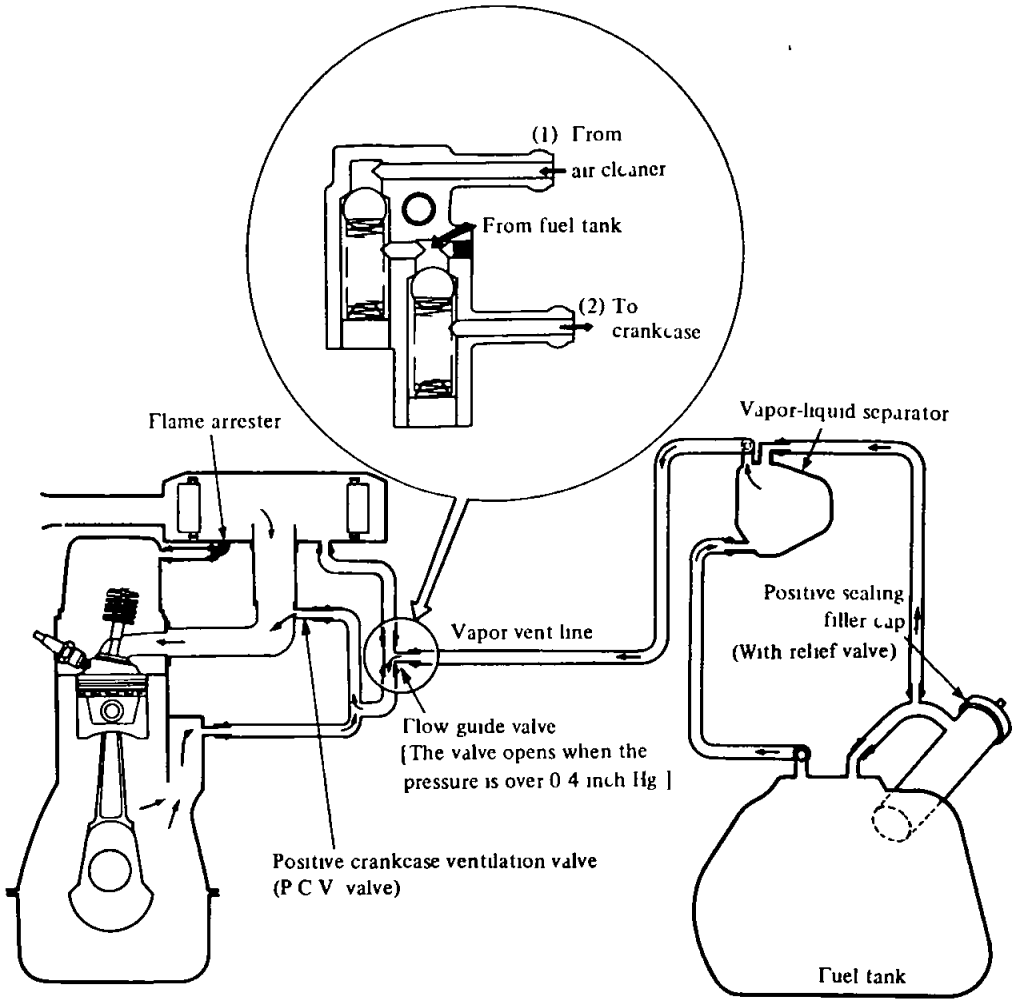
NOTE *The optional air conditioning drive belt is adjusted in a similar fashion*



Loosen the alternator bracket nuts to adjust belt tension

AIR CONDITIONING

This book contains no repair or maintenance procedures for the air conditioning



Typical 1973–74 evaporative control system showing location of check valve

system It is recommended that any such repairs be left to the experts, whose personnel are well aware of the hazards and who have the proper equipment

CAUTION *The compressed refrigerant used in the air conditioning system expands into the atmosphere at a temperature of −21 7° F or lower This will freeze any surface, including your eyes, that it contacts In addition, the refrigerant decomposes into a poisonous gas in the presence of flame Do not open or disconnect any part of the air conditioning system*

Sight Glass Check

You can safely make a few simple checks to determine if your air conditioning system needs service The tests work best if the temperature is warm (about 70° F)

1 Place the automatic transmission in Park or the manual transmission in Neutral Set the parking brake

2 Run the engine at a fast idle (about 1,500 rpm) either with the help of a friend, or by temporarily readjusting the idle speed screw

3 Set the controls for maximum cold with the blower on high

4 Locate the sight glass in one of the system lines Usually it is on the left alongside the top of the radiator

5 If you see bubbles, the system must be recharged Very likely there is a leak at some point

6 If there are no bubbles, there is either no refrigerant at all or the system is fully charged Feel the two hoses going

The sight glass is located in the head of the receiver-dryer (arrow)

to the belt-driven compressor If they are both at the same temperature, the system is empty and must be recharged

7 If one hose (high-pressure) is warm and the other (low-pressure) is cold, the system may be alright However, you are probably making these tests because you think there is something wrong, so proceed to the next step

8 Have an assistant in the car turn the fan control on and off to operate the compressor clutch Watch the sight glass

9 If bubbles appear when the clutch is disengaged and disappear when it is engaged, the system is properly charged

10 If the refrigerant takes more than 45 seconds to bubble when the clutch is disengaged, the system is overcharged This usually causes poor cooling at low speeds

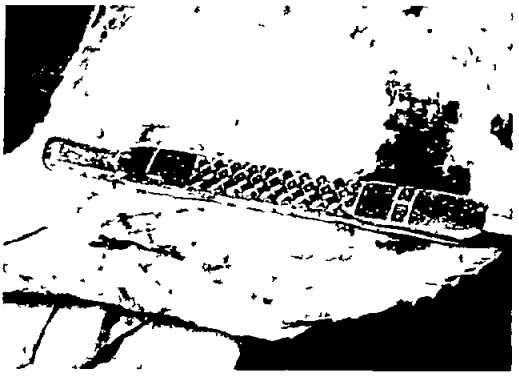
CAUTION *If it is determined that the system has a leak, it should be corrected as soon as possible Leaks may allow moisture to enter and cause a very expensive rust problem*

NOTE *Exercise the air conditioner for a few minutes, every two weeks or so, during the cold months This avoids the possibility of the compressor seals drying out from lack of lubrication*

FLUID LEVEL CHECKS

Engine Oil

The best time to check the engine oil is before operating the engine or after it has been sitting for at least 10 minutes in order to gain an accurate reading This will allow the oil to drain back in the crankcase To check the engine oil level, make sure that the vehicle is resting on a level surface, remove the oil dipstick, wipe it clean and reinsert the stick firmly for an accurate reading The oil dipstick has two marks to indicate high and low oil level If the oil is at or below the "low level" mark on the dipstick, oil should be added as necessary The oil level should be maintained in the safety margin, neither going above the "high level" mark or below the "low level" mark



Oil dipstick markings

Transmission

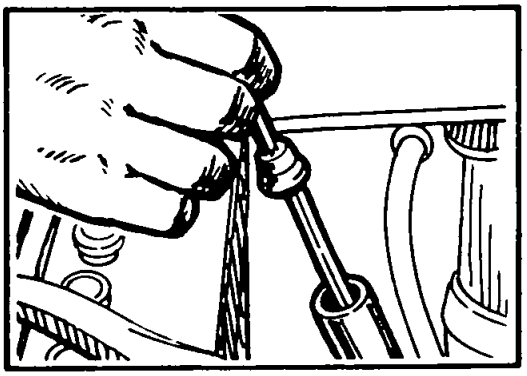
MANUAL

Check the level of the lubricant in the transmission every 3,000 miles The lubricant level should be maintained to the bottom of the filler hole Hold in on the

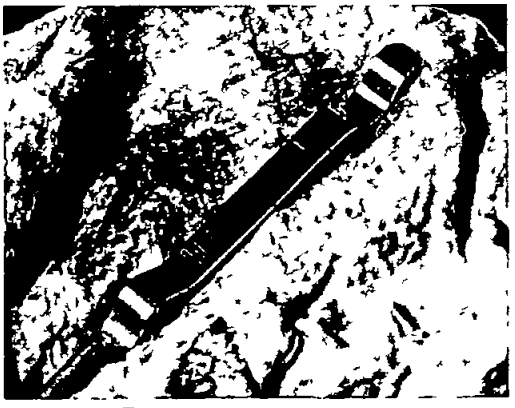
filler plug when unscrewing it When you are sure that all of the threads of the plug are free of the transmission case, move the plug away from the case slightly If lubricant begins to flow out of the transmission, then you know it is full If not, add SAE90 gear oil as necessary It is recommended that the transmission lubricant be changed every 24,000 miles

AUTOMATIC

Check the level of the automatic transmission fluid every 2,000 miles There is a dipstick at the right rear of the engine under the hood It has a scale on each side, one for COLD and the other for HOT The transmission is considered hot after 15 miles of highway driving



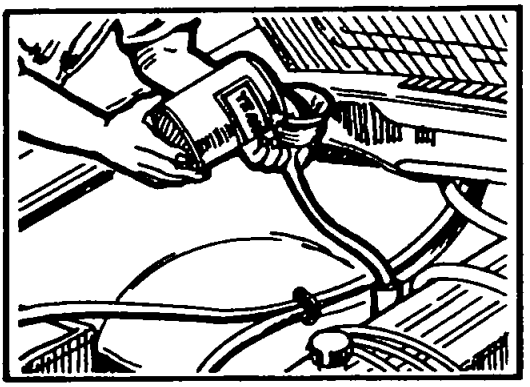
Remove the automatic transmission dipstick with engine warm and idling in Park



Automatic transmission dipstick markings

Park the car on a level surface with the engine running If the transmission is not hot, shift into Drive, Low, then Neutral or Park Set the handbrake and block the wheels

Remove the dipstick, wipe it clean, then reinsert it firmly Remove the dipstick and check the fluid level on the appropriate scale The level should be at the "Full" mark



Add automatic transmission fluid through the dipstick tube

If the level is below the "Full" mark, add Type A or Dexron® type automatic transmission fluid as necessary, with the engine running, through the dipstick tube Do not overfill, as this may cause the transmission to malfunction and damage itself

Brake and Clutch Master Cylinder

Check the levels of brake fluid in the brake and clutch master cylinder reservoirs every 3,000 miles The fluid level should be maintained to a level not below the bottom line on the reservoirs and not above the top line Any sudden decrease in the level in either of the three reservoirs (two for the brakes and one for the clutch) indicates a probable leak in that particular system and the possibility of a leak should be checked out

Remove the cap to add hydraulic fluid

Coolant

Check the coolant level every time you change the oil Check for loose connections and signs of deterioration of the coolant hoses Maintain the coolant level 3 in below the level of the filler neck when the engine is cold Add a mixture of 70% to 50% water and 30% to 50% ethylene glycol antifreeze as necessary Never remove the radiator cap when the vehicle is hot or overheated Wait until it has cooled Place a thick cloth over the radiator cap to shield yourself from the heat and turn the radiator cap *slightly* until the sound of escaping pressure can be heard *Do not turn any more* Allow the pressure to release gradually When no more pressure can be heard escaping, then remove the cap with the heavy cloth *cautiously* Never add cold water to an overheated engine while the engine is not running Run the engine until it reaches normal operating temperature after filling the radiator to make sure that the thermostat has opened and all air is bled from the system

Rear Axle

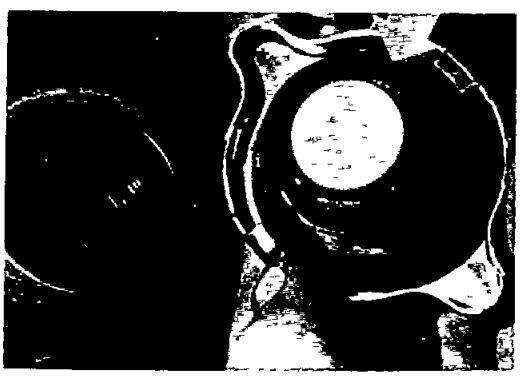
Check the rear axle lubricant every 6,000 miles Remove the filler plug in the axle housing The lubricant should be up to the bottom of the filler hole with the vehicle resting on a level surface Add SAE90 gear oil as necessary to bring the lubricant up to the proper level

Steering Gear

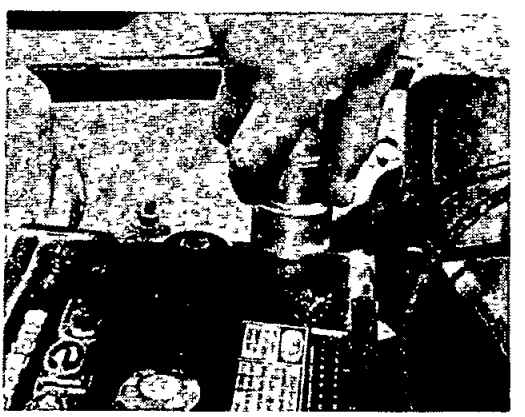
Check the level of the lubricant in the steering gear every 12,000 miles If the level is low, check for leakage An oily film is not considered a leak, solid grease must be present Change the lubricant every 36,000 miles Use steering gear lubricant The lubricant is added and checked through the filler plug hole in the top of the steering gear

Battery

The battery is located in the engine compartment Routinely check the battery electrolyte level and specific gravity. A few minutes occasionally spent monitoring battery condition is worth saving hours of frustration when your car won't start due to a dead battery. Only distilled water should be used to top up the battery, as tap water, in many areas, contains harmful minerals Two tools which will facilitate battery maintenance are a hydrometer and a squeeze bulb filler These are cheap and widely available at automotive parts stores, hardware stores, etc The specific gravity of the electrolyte should be between 1 27 and 1 20 Keep the top of the battery clean, as a film of dirt can sometimes completely discharge a battery A solution of baking soda and water may be used to clean the top surface, but be careful to flush this off with clear water and that none of the solution enters the filler holes Clean the battery posts and clamps with a wire brush to eliminate corrosion deposits Special clamp and terminal cleaning brushes are available for just this purpose Lightly coat the posts and clamps with petroleum



Check the rubber gasket on the cap when checking coolant level



Keep battery top and posts clean

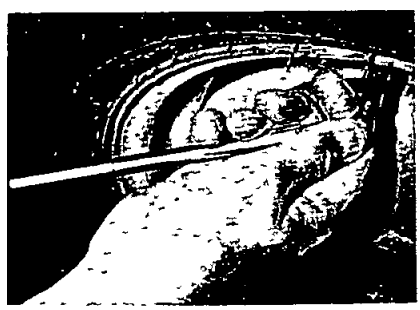
Capacities

Model	ENGINE CRANKCASE With Filter	ENGINE CRANKCASE Without Filter	TRANSMISSION (pts) 4-Spd	TRANSMISSION (pts) 5-Spd	TRANSMISSION (pts) Automatic (total capacity)	Drive Axle (pts)	Gas Tank (gals)	Cooling System (qts)
1973 510	5 2	4 4	4 4	—	11 4	1 75	11 9	7 2
1973 1200	3 4	2 7	2 5	—	11 8	1 8	9 3	5 7
1973 610	5 0	4 5	4 25	—	11 8	1 75/2 75 (wagon)	13 8	9 0
1974 B210	4 25	3 75	2 5	—	11 8	1 8	11 5	5 5
1974 610	4 5	4 0	4 25	—	11 8	1 75/2 2 (wagon)	14 5/13 5 (wagon)	7 25
1974 710	4 5	4 0	3 5	—	11 8	2 75	13 25/11 8 (wagon)	7 25
1975 B210	4 2	3 7	3 7	—	12 00	2 0	11 5	5 7
1975 610	4 5	4 0	4 25	—	11 8	1 75/2 75 (wagon)	14 5/13 7 (wagon)	7 25
1975 710	4 5	4 0	4 25	—	11 8	2 75	13 2/11 8 (wagon)	7 25
1976–78 B210	3 8	3 4	2 75	3 6	11 8	1 8	11 5	6 25
1976 610	4 5	4 0	4 25	—	11 8	1 75/2 2 (wagon)	14 5/13 75 (wagon)	7 25
1976–77 710	4 5	4 0	4 25	—	11 8	2 75	13 25/11 8 (wagon)	7 25
1977–78 810	6 0	5 25	3 6	—	11 8	2 75/2 2 (wagon)	15 9/14 5 (wagon)	11
1977–78 F10	3 6	3 2	4 9	4 9	—	—	10 6	7
1977–78 200SX	4 5	4 0	—	3 6	11 8	2 75	15 9	7 9
1978 510	4 5	4 0	3 6	3 6	11 8	2 75	13 2	9 4

jelly or chassis grease after cleaning them

TIRES

Check the air pressure in your tires every few weeks Make sure that the tires are cool, as you will get a false reading when the tires are heated because air pressure increases with temperature A decal tells you the proper tire pressure for the standard equipment tires Naturally, when you replace tires you will

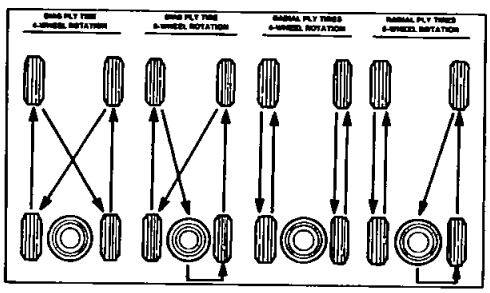


Frequently check your tire pressure with a reliable gauge

want to get the correct tire pressures for the new ones from the dealer or manufacturer It pays to buy a tire pressure gauge to keep in the car, since those at service stations are usually inaccurate or broken

While you are checking the tire pressure, take a look at the tread The tread should be wearing evenly across the tire Excessive wear in the center of the tread indicates overinflation Excessive wear on the outer edges indicates underinflation An irregular wear pattern is usually a sign of incorrect front wheel alignment or wheel balance A front end that is out of alignment will usually pull the car to one side of a flat road when the steering wheel is released Incorrect wheel balance will produce vibration in the steering wheel, while unbalanced rear wheels will result in floor or trunk vibration

Rotating the tires every 6,000 miles or so will result in increased tread life Use the correct pattern for your tire switching Most automotive experts agree that radial tires are better all around performers, giving longer wear and better handling An added benefit which you should consider when purchasing tires is that radials have less rolling resistance and can give up to a 10% increase in fuel economy over a bias-ply tire.

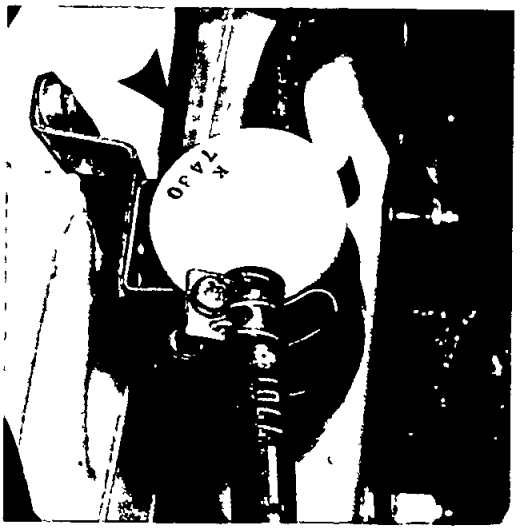


Tire rotation patterns

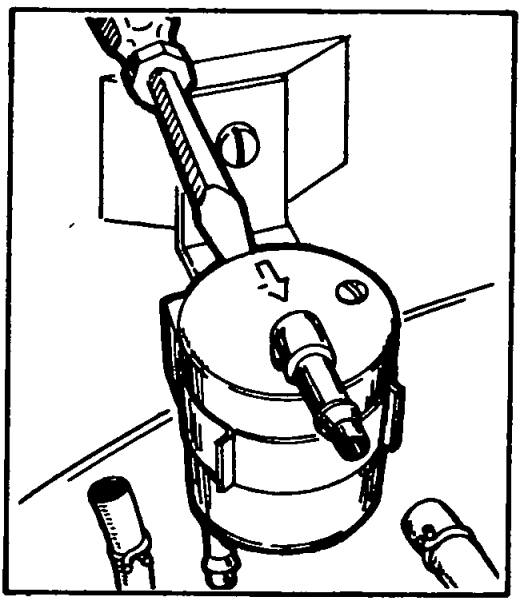
Tires of different construction should never be mixed Always replace tires in sets of four or five when switching tire types and never substitute a belted tire for a bias-ply, a radial for a belted tire, etc An occasional pressure check and periodic rotation could make your tires last much longer than a neglected set and maintain the safety margin which was designed into them

FUEL FILTER

The fuel filter on all models is a disposable plastic unit It's located on the right inner fender The filter should be replaced at least every 24,000 miles A dirty filter will starve the engine and cause poor running



Fuel filter (arrow) This is a 1978 510, others are similar

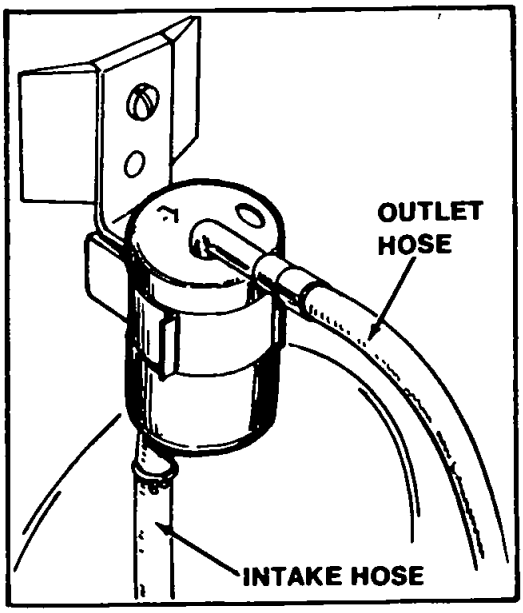


Push the old filter out of the clamp

Replacement

1 Locate fuel filter on right-side of the engine compartment.

2 Disconnect the inlet and outlet hoses from the fuel filter Make certain that the inlet hose (bottom) doesn't fall



Be sure to reattach the hoses correctly

below the fuel tank level or the gasoline will drain out

3 Pry the fuel filter from its clip and replace the assembly

4 Replace the inlet and outlet lines, secure the hose clamps to prevent leaks

5 Start the engine and check for leaks

Lubrication

OIL AND FUEL RECOMMENDATIONS

Your Datsun is designed to operate on regular low lead or lead-free fuel The octane ratings are listed on the inside of the fuel filler door, but these need only be checked when traveling outside of the United States Should you find the regular gasoline available, say in Mexico, to be of too low an octane, mix enough Premium to raise the octane level No benefit will be derived from running a higher octane gasoline than that recommended

Oil must be selected with regard to the anticipated temperatures during the period before the next oil change Using the chart, select the oil viscosity for the lowest expected temperature and you will be assured of easy cold starting and sufficient engine protection The oil you pour into your Datsun engine should have the designation "SE" marked on the top of its container Under the classification system adopted by the American Petroleum Institute (API) in May, 1970, "SE" is the highest designation for passenger car use The "S" stands for passenger car and the second letter denotes a more specific application "SA" oil, for instance, contains no additives and is suitable only for very light-duty usage Oil designated "MS" (motor severe) may also be used, since this was the highest classification under the old API rating system

Oil Viscosity Selection Chart

	Anticipated Temperature Range	*SAE Viscosity*
Multi-grade	Above 32° F	10W—40 10W—50 20W—40 20W—50 10W—30
	May be used as low as −10° F	10W—30 10W—40
	Consistently below 10° F	5W—20 5W—30
Single-grade	Above 32° F	30
	Temperature between +32° F and −10° F	10W

OIL CHANGES

The mileage figures given in your owner's manual are the Datsun recommended intervals for oil and filter changes assuming average driving If your Datsun is being used under dusty, polluted, or off-road conditions, change the oil and filter sooner than specified The same thing goes for cars driven in stop-and-go traffic or only for short distances

Always drain the oil after the engine has been running long enough to bring it to operating temperature Hot oil will flow easier and more contaminants will be removed along with the oil than if it were drained cold You will need a large capacity drain pan, which you can pur-

chase at any store which sells automotive parts Another necessity is containers for the used oil You will find that plastic bottles, such as those used for bleach or fabric softener, make excellent storage jugs One ecologically desirable solution to the used oil disposal problem is to find a cooperative gas station owner who will allow you to dump your used oil into his tank Another is to keep the oil for use around the house as a preservative on fences, railroad tie borders, etc

Datsun recommends changing both the oil and filter during the first oil change and the filter every other oil change thereafter For the small price of an oil filter, it's cheap insurance to replace the filter at every oil change One of the larger filter manufacturers points out in its advertisements that not changing the filter leaves one quart of dirty oil in the engine This claim is true and should be kept in mind when changing your oil

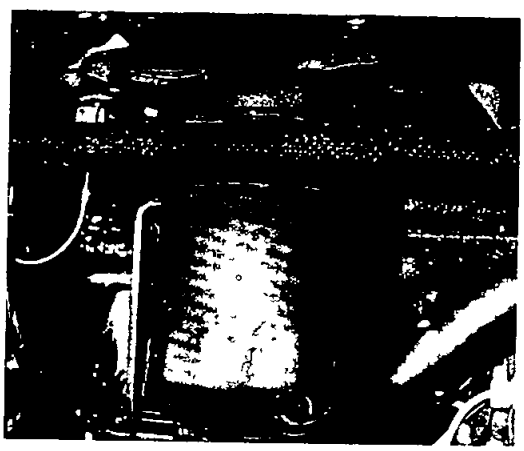
Changing Your Engine Oil

1 Run the engine until it reaches normal operating temperature

2 Jack up the front of the car and support it on safety stands

3 Slide a drain pan of at least 6 quarts capacity under the oil pan

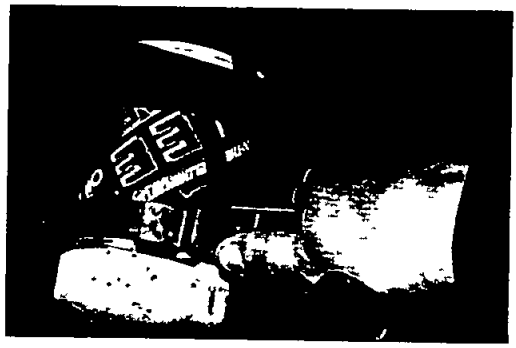
4 Loosen the drain plug Turn the plug out by hand By keeping an inward



The oil filter on L-series engines is easily located on the right hand side of the block

pressure on the plug as you unscrew it, oil won't escape past the threads and you can remove it without being burned by hot oil

5 Allow the oil to drain completely and then install the drain plug Don't overtighten the plug, or you'll be buying a new pan or a trick replacement plug for buggered threads



A strap wrench will make oil filter removal easier

6 Using a strap wrench, remove the oil filter Keep in mind that it's holding about one quart of dirty, hot oil.

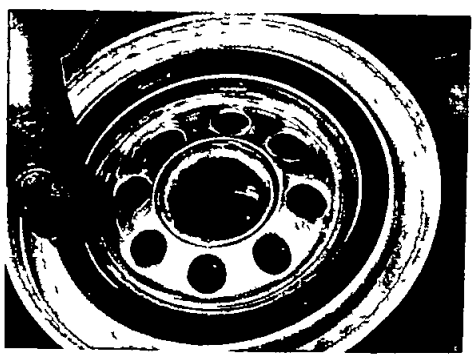
NOTE *You can remove the oil filter on 510, 610, and 710 models from above*

7 Empty the old filter into the drain pan and dispose of the filter.

8 Using a clean rag, wipe off the filter adapter on the engine block Be sure that the rag doesn't leave any lint which could clog an oil passage

9 Coat the rubber gasket on the filter with fresh oil Spin it onto the engine *by hand,* when the gasket touches the adapter surface give it another ½–¾ turn No more, or you'll squash the gasket and it will leak

10 Refill the engine with the correct amount of fresh oil See the "Capacities" chart.



Lightly oil the rubber gasket on the filter before installation

11 Crank the engine over several times and then start it If the oil pressure "idiot light" doesn't go out or the pres-