ROAD EMPEROR

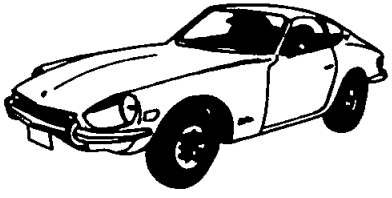
SERVICE/REPAIR HANDBOOK FOR

DATSUN

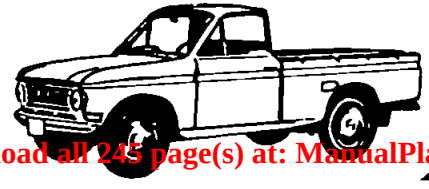
1200	1968/73
B210	1974/77

510	1968/73
610	1973/76
710	1974/77

240Z	1970/73
260Z	1974
280Z	1975/77



L521	mid-1968/69
PL510	1970/mid-1972
PL620	mid-1972/77



SERVICE/REPAIR HANDBOOK FOR

DATSUN

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CONTENTS

ROAD EMPEROR™

SERVICE/REPAIR HANDBOOK FOR

DATSUN

CHAPTER ONE

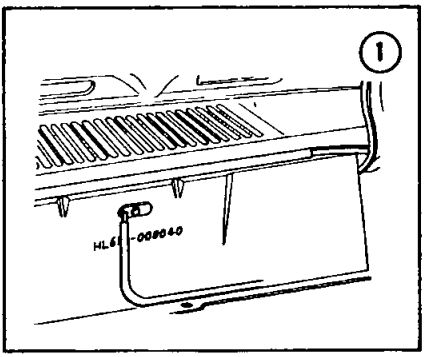
GENERAL INFORMATION

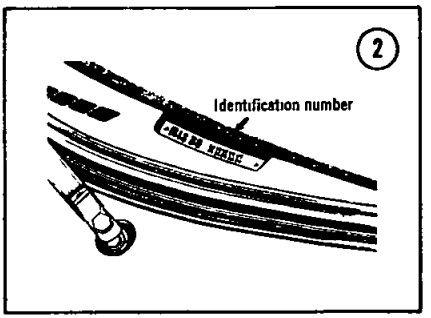
This manual provides tune-up, maintenance, and repair information for the following Datsuns

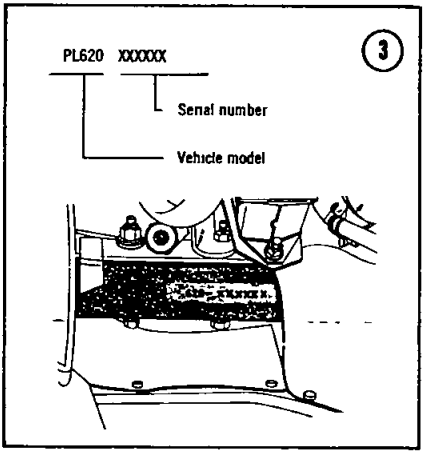
1200 (B110), 1968-1973
B210, 1974-1977
510, 1968-1973
610, 1973-1976
710, 1974-1977
L521 pickup, mid-1968 through 1969
PL521 pickup, 1970 to mid-1972
PL620 pickup, mid-1972-1977
240Z, 1970-1973
260Z, 1974
280Z, 1975-1977

The 1200 and B210 use versions of the A-series, 4-cylinder pushrod engine The L521 pickups use the J13 engine, another pushrod four The 510's, 610's, 710's, PL521 pickups, and PL620 pickups use 4-cylinder versions of the overhead cam L-series engine The Z sports cars use 6-cylinder versions of the L-series engine

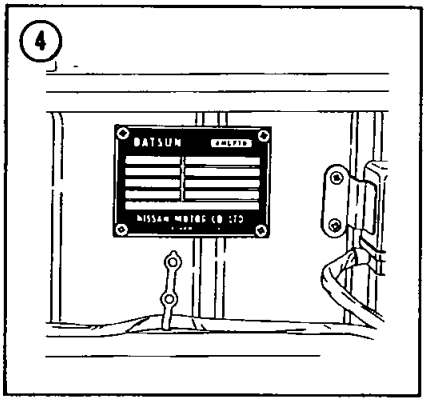
The vehicle identification number on cars is stamped on the firewall **(Figure 1)** as well as on a plate riveted to the instrument panel and visible from outside the car **(Figure 2)** The chassis number on pickup trucks is stamped on the right-hand frame member near the motor mount **(Figure 3)**







The body plate (**Figure 4**) is riveted to the right front strut housing on Z sports cars, and to the firewall on all others The plate lists vehicle type, engine size, maximum horsepower, wheelbase, vehicle number, and engine number The engine number on all models is also stamped on the right-hand side of the cylinder block



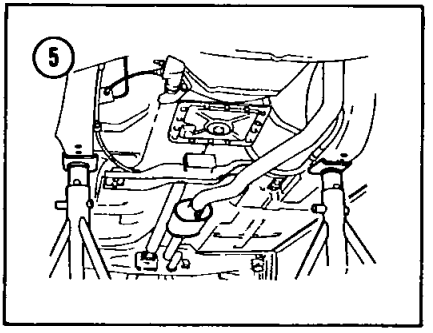
SERVICE HINTS

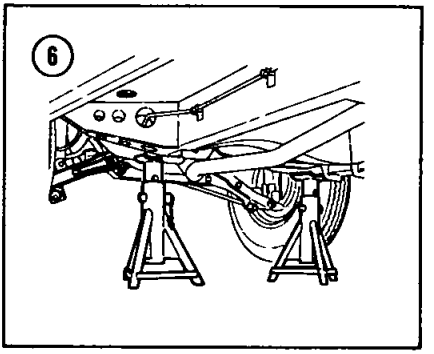
Observing the following practices will save time, effort, and frustration, as well as prevent possible injury

1 Throughout this manual, with 2 exceptions, the word "front" refers to the front of the vehicle The front end of any part is the end nearest the front of the vehicle when the part is installed The 2 exceptions are the steering wheel and the instrument panel The front of these 2 parts is the side which faces the driver

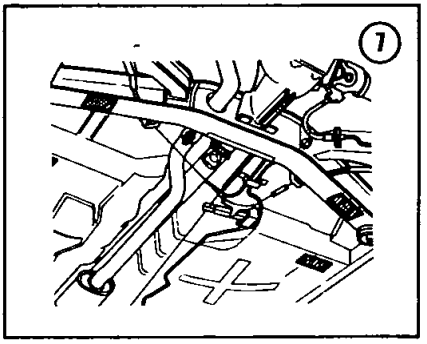
2 The position of the driver also determines "left" and "right " For example, the steering wheel is on the left side

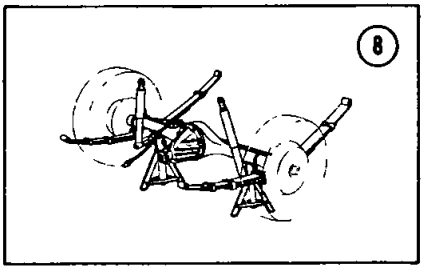
3 When working under a vehicle, do not trust a hydraulic or mechanical jack to hold the vehicle up by itself Always use jackstands When raising a front end, position the stands as shown in **Figure 5** (cars) or **Figure 6** (pickups) On cars with independent rear suspension, position the stands beneath the areas indicated in **Figure 7** On rigid-axle vehicles, place jackstands beneath the axle housing (**Figure 8**)





4 Disconnect the battery ground cable before working near electrical connections and before disconnecting wires





5 Avoid flames or sparks when working near a charging battery or flammable liquids such as gasoline

6 Tag all similar internal parts for location, and mark all mating parts for position Record number and thickness of any shims as they are removed Small parts such as bolts can be identified by placing them in plastic sandwich bags, sealed and labeled with masking tape

7 Protect finished surfaces from physical damage or corrosion Keep gasoline and brake fluid off painted surfaces

8 Frozen or very tight bolts and screws can often be loosened by soaking with penetrating oil, then striking the bolt head a few times with a hammer and punch (or screwdriver for screws) Heat is to be avoided unless absolutely necessary, since it may melt, warp, or remove the temper from many parts

9 No parts, except those assembled with a press fit, require unusual force during assembly If a part is hard to remove or install, find out why before proceeding

10 Cover all openings after removing parts to keep dirt, small tools, etc , from falling in

11 When assembling 2 parts, start all fasteners, then tighten them evenly

12 When buying replacement parts, always take the old part to the parts store, if possible, for comparison to the new part

13 Dimensions and capacities are expressed in inch units familiar to U S mechanics, as well as in metric units *Metric tools are required to* work on Datsuns

MANUAL ORGANIZATION

This chapter provides general information for the models covered by this book

Chapter Two explains all periodic lubrication and routine maintenance necessary to keep your Datsun running well Chapter Two also includes recommended tune-up procedures, eliminating the need to constantly consult chapters on the various subassemblies

Chapter Three provides methods and suggestions for quick and accurate diagnosis and repair of problems Troubleshooting procedures discuss typical symptoms and logical methods to pinpoint the trouble It also discusses equipment useful for both preventive maintenance and troubleshooting

Subsequent chapters describe specific systems such as the engine, transmission, and electrical system Each chapter provides complete disassembly, repair, and assembly procedures in simple step-by-step form If a repair is impractical for the home mechanic, it is so indicated It is usually faster and cheaper to take such repairs to a Datsun dealer or other competent repair shop Specifications concerning a particular system are covered at the end of the appropriate chapter

Some of the procedures in this manual call for special tools In all such cases the tool is illustrated, either in actual use or alone These tools are available from Datsun on a special order basis A well-equipped mechanic may find he can substitute other similar tools already on hand, or can fabricate his own Also, when a procedure requires a special tool,

a great deal of time and expense can be saved by having a dealer or repair shop perform only the step which requires the special tool, but doing the rest of the work yourself

The terms, NOTE CAUTION and WARNING have specific meanings in this book A NOTE provides additional information to make a step or procedure easier or clearer Disregarding a NOTE could cause inconvenience, but would not cause damage or personal injury

A CAUTION emphasizes areas where equipment damage could occur Disregarding a CAUTION could cause permanent mechanical damage, however, personal injury is unlikely

A WARNING emphasizes areas where personal injury or even death could result from negligence Mechanical damage could also occur WARNINGS are to be taken seriously In some cases serious injury or death has been caused by mechanics disregarding similar warnings

CHAPTER TWO

LUBRICATION, MAINTENANCE, AND TUNE-UP

This chapter deals with the normal maintenance necessary to keep your Datsun running properly It includes a summary of service intervals in table form **(Tables 1 through 4)** The latter part of the chapter contains a tune-up procedure which simplifies and organizes the process

ROUTINE CHECKS

The following checks should be done at each stop for gas

1 Check engine oil level **(Figure 1)** Top up to the "H" mark on the dipstick if necessary, using a grade recommended in **Tables 5 and 6**

Table 1 FUEL STOP CHECKS

Item	Procedure
Engine oil	Check level
Coolant	Check level
Battery electrolyte	Check level
Windshield washers	Check container level
Brake fluid	Check level
Tire pressures	Check

2 Check coolant level **(Figure 2)**. It should be one inch below the filler cap

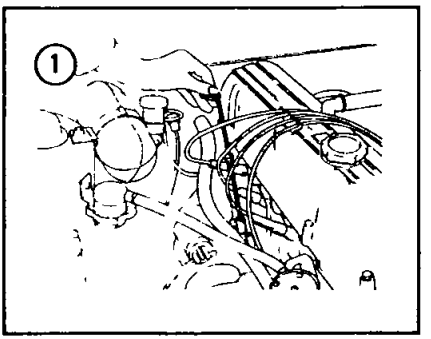


Table 6 RECOMMENDED LUBRICANTS

Engine	API Service SD or SE
Manual transmission	API GL-4
Automatic transmission	
Borg Warner Model 35	Type A
Borg Warner Model 41, Nissan Model 3N71B	Dexron
Differential	API GL 5
Brake and clutch fluid	DOT 3

WARNING

Do not remove the radiator cap quickly when the engine is hot Cover the cap

Table 2 SCHEDULED MAINTENANCE, 1968-1973

Service	Months or thousands of miles 3	6	12	24	30
Engine oil	X				
Manual transmission oil	X				X
Automatic transmission fluid	X				
Differential oil	X				X
Hydraulic systems	X				
Engine leak inspection		X			
Drive belts (except 240Z)		X			
Drive belts (240Z)			X		
Throttle cable or linkage		X			
Choke mechanism		X			
Steering linkage suspension (cars)		X			X
Steering linkage, suspension (pickups)	X		X		
Hinges, latches, locks		X			
PCV system			X		
Evaporative emission control system			X		
EGR system (1973 240Z only)			X		
Cooling system			X		
Vacuum lines			X		
ATC air cleaner			X		
Fuel filter*			X		
Spark timing control system*			X		
Throttle opener or BCDD			X		
Brake fluid (cars)			X		
Brake fluid (pickups)				X	
Brake booster (power brakes)			X		
Brake inspection	X		X		
Battery			X		
Shock absorbers			X		
Drive shaft			X		
Wheel alignment			X		
Pedals			X		
Coolant				X	
Air cleaner element				X	
Air injection system				X	
Proportioning valve (cars)				X	
Wheel bearings (cars)					X
Wheel bearings (pickups)			X		
Rear axle shafts (independent rear suspension)					X
Headlights					X
Drive Shaft					X
Tune-up			X		

*24 000 miles on 240Z's and 1973 pickup trucks.

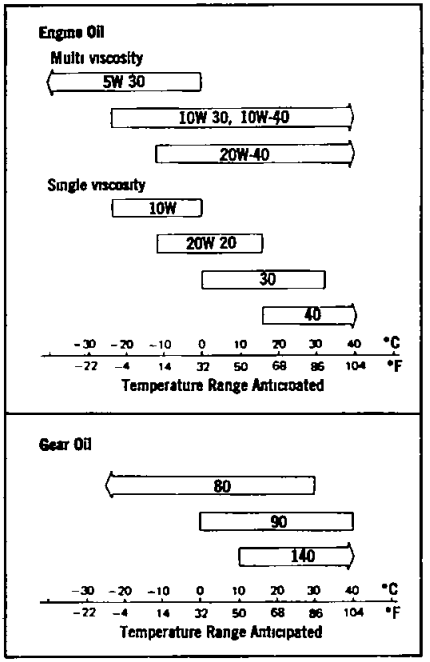
Table 3 SCHEDULED MAINTENANCE 1974

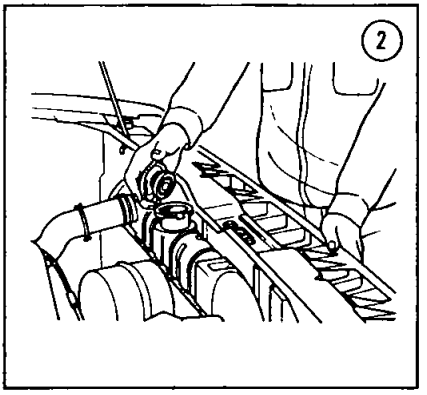
Service	Months or thousands of miles 4	8	12	24	36
Engine oil	X				
Manual transmission oil	X				X
Automatic transmission fluid	X				
Differential oil	X				X
Hydraulic systems	X				
Engine leak inspection	X				
Drive belts			X		
Throttle cable or linkage		X			
Choke mechanism			X		
Steering linkage suspension		X		X	
Hinges latches locks		X			
PCV system			X		
Evaporative emission control system			X		
Exhaust gas recirculation system			X		
Cooling system			X		
Vacuum lines			X		
ATC air cleaner			X		
Fuel filter				X	
Spark timing control system				X	
Throttle opener or BCDD			X		
Brake fluid			X		
Brake booster			X		
Brake inspection	X		X		
Battery		X			
Shock absorbers			X		
Drive shaft			X		X
Wheel alignment		X			
Engine compression			X		
Coolant				X	
Air cleaner element				X	
Air injection system				X	
Brake proportioning valve				X	
Wheel bearings (cars)					X
Wheel bearings (pickups)			X		
Rear axle shafts (independent rear suspension)					X
Drive Shaft					X
Headlights					X
Tune-up			X		

Table 4 SCHEDULED MAINTENANCE, 1975-1977

Service	Thousands of miles (months) 6 25 (6)	12 5 (12)	25 (24)
Engine oil	X		
Manual transmission oil	X		X
Automatic transmission fluid	X		
Differential oil	X		X
Hydraulic systems	X		
Drive belts		X	
Choke mechanism		X	
Steering linkage suspension (cars)		X	X
Steering linkage, suspension (pickups)	X	X	
Hinges, latches, locks	X		
PCV system		X	
EGR system		X	
Evaporative emission control system		X	
Cooling system		X	
Vacuum lines		X	
ATC air cleaner		X	
Fuel filter			X
Spark timing control system			X
Throttle opener or BCDD		X	
Brake fluid		X	
Brake booster		X	
Brake inspection	X	X	
Wheel alignment		X	
Coolant			X
Air cleaner element			X
Proportioning valve (cars)	X		
Load sensing valve (1976 pickups)	X		
Wheel bearings			X
Tune-up		X	

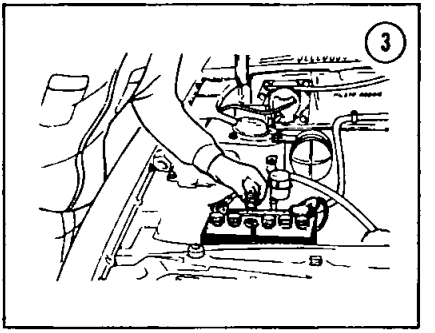
Table 5 LUBRICANT VISCOSITY





with a rag and turn it ¼ turn counterclockwise After cooling system pressure has been released, press the cap down, turn counterclockwise, and remove

3 Remove the battery filler caps and check electrolyte level (**Figure 3**) It should be approximately ¼ in above the plates inside the battery If low, top up with distilled water Do not overfill



4 Check the level of the windshield washer container It should be kept full

CAUTION

Do not use radiator anti-freeze in the windshield washer container The run-off may damage the vehicle's paint

5 Check fluid level in the brake and clutch master cylinders (**Figure 4**) Since the reservoirs are translucent, this can be done at a glance Fluid should be between the lines on the reservoirs If low, top up with brake fluid marked DOT 3 The same fluid is used for clutch and brakes

CAUTION

Do not remove reservoir caps unless topping up fluid Clean the area around the caps before removing

6 Check tire pressure This should be done when the tires are cold Recommended pressures are listed in **Table 7**

PERIODIC CHECKS AND MAINTENANCE

The following procedures are done at specified intervals of miles or time The service

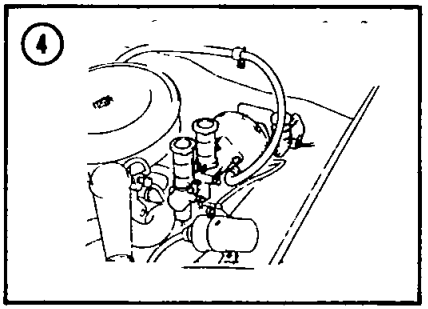


Table 7 TIRE PRESSURES

Vehicle	Front (psi)	Rear (psi)
1200 6 00-12 tires	17[1]	17[1]
1200 155SR 12 tires	24	24
B210 (all)	24	24
510 5 60-13 tires		
Up to 600 lb load	24[2]	28[2]
600-750 lb load	28	32
510 165SR 13	28	28
610 and 710 6 45-13 tires		
Up to 600 lb load	24[2]	28[2]
600-750 lb load	28	32
610 and 710 165SR 13 tires	28	28[3]
521 pickups		
Moderate load under 60 mph	21	25
Heavy load, under 60 mph	21	42
Moderate load, more than 60 mph	26	29
Heavy load more than 60 mph	26	46
620 pickups (6-ply rating)		
Moderate load under 60 mph	21	25
Heavy load under 60 mph	21	42
Moderate load more than 60 mph	26	32
Heavy load more than 60 mph	26	49[4]
620 pickups (8-ply rating)		
Moderate load under 60 mph	–	39
Heavy load under 60 mph	–	60
Moderate load more than 60 mph	–	60
Heavy load more than 60 mph	–	67
240-260Z		
Under 100 mph	28	28
More than 100 mph	32	32

1 Add 5 psi over 60 mph
2 Add 4 psi over 60 mph
3 30 psi on 1975 and later models
4 45 psi on 1977 models

schedule for 1968-1973 models is based on intervals of 3,000 miles or 3 months The schedule for 1974 vehicles is based on intervals of 4,000 miles or 4 months The 1975-1976 schedule is based on intervals of 6,250 miles or 6 months

These service schedules are intended for vehicles given normal use More frequent service is required under the following conditions

Stop-and-go driving
Constant high-speed driving
Severe dust
Rough or salted roads
Very hot, very cold, or rainy weather

Some maintenance procedures are included in the tune-up section at the end of the chapter, and detailed instructions will be found there Other steps are explained in various chapters Chapter references are included with these steps

Engine Oil

Use an oil recommended in **Tables 5 and 6** To drain the oil, first run the engine until it warms up This allows the oil to drain freely

Place a container under the oil pan and remove the drain plug Let the oil drain completely (10-15 minutes) Then check the drain plug gasket and reinstall the plug

Remove the filler cap on the valve rocker cover and fill with the recommended oil Capacity is listed in **Table 8**

Wait several minutes after filling, then check dipstick to be sure oil level is correct Oil used must be rated "For API Service SD or SE "

On 1968-1974 vehicles, the oil filter is replaced at alternate oil changes On 1975 and later models, the filter is replaced at every oil change

The oil filter is a disposable cartridge type, and is replaced as a complete unit

To remove the old filter, unscrew it by hand or use a filter wrench **Figure 5** shows an L-series oil filter being removed The A-series and J13 filters are removed in the same manner Clean the gasket contact point on the engine with a lint-free cloth Coat the gasket on the new filter with clean oil and screw it in until it stops Tighten ⅓ turn further by hand Do not overtighten Do not use a filter wrench

Manual Transmission Oil

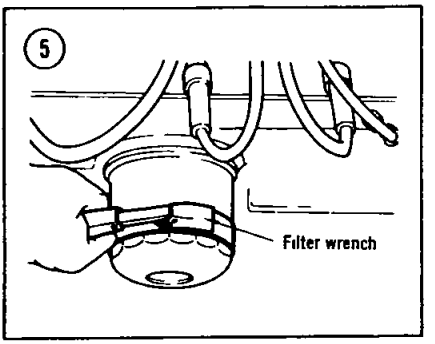
Check level at 3,000 miles (1968-1973), 4,000 miles (1974), or 6,250 miles (1975 on)

To check, remove the filler plug from the side of the transmission Make sure the oil level is

Table 8 APPROXIMATE REFILL CAPACITIES

Engine Oil	
1200, B210 (through 1974)	
With filter change	3½ quarts
Without filter change	3 quarts
B210 (1975)	
With filter change	4⅛ quarts
Without filter change	3⅝ quarts
B210 (1976 on)	
With filter change	3⅞ quarts
Without filter change	3⅞ quarts
510 610 710 PL521 pickup, and 1972 73 PL620 pickup	
With filter change	4½ quarts
Without filter change	4 quarts
PL620 pickup (1974 on)	
With filter change	4¼ quarts
Without filter change	5 quarts
L521 pickup (J13 engine)	
With filter change	3¾ quarts
Without filter change	3⅛ quarts
240Z	
With filter change	5⅛ quarts
Without filter change	4¼ quarts
260, 280Z	
With filter change	5 quarts
Without filter change	4¼ quarts
Transmission oil (manual)	
1200 B210 (4 speed)	2½ pints
B210 (5 speed)	3⅝ pints
510, 610 1968 1973 pickup	4¼ pints
710 (through 1976)	4¼ pints
710 (1977)	3⅝ pints
Pickup (1974 1977 4 speed)	3½ pints
Pickup (1977 5-speed)	4¼ pints
Z sports car (1970-1976 4-speed)	3⅛ pints
Z sports car (1977, 4-speed)	3⅝ pints
Z sports car (1977, 5 speed)	4¼ pints
Transmission fluid (automatic)	5⅞ quarts
Differential oil	
1200	1⅝ pints
B210	1⅞ pints
510, 619, independent rear suspension	1¼ pints
510, 610, 710 (rigid axle)	2¼ pints*
521 pickups	1¾ pints
620 pickup	2⅛ pints

*2 pints on 1974 610 station wagon with manual transmission.



within ¼ in of the bottom of the filler plug threads Top up with an oil recommended in **Tables 5 and 6** if it is low

Change transmission oil at 30,000 miles (1968-1973), 36,000 miles (1974), or 25,000 miles (1975 on)

To change the oil, first warm it by driving the car a short distance Remove the filler and drain plugs and drain the oil Reinstall the drain plug and fill with an oil recommended in **Tables 5 and 6** The easiest way to fill the transmission is to run a long tube from the engine compartment along the side of the transmission and into the filler hole

Capacity is listed in **Table 8** When the transmission is full, reinstall the filler plug

NOTE *Check old transmission oil for such signs of damage as gear teeth and pieces of brass from synchronizers*

Automatic Transmission Fluid

Check fluid level and condition as described in *Automatic Transmission Fluid Level Check*, Chapter Nine

Differential Oil

Check level at 3,000 miles (1968-1973), 4,000 miles (1974), or 6,250 miles (1975 on) To check, remove the filler plug from the rear side of the differential Make sure oil level is within ¼ in of the filler plug threads If necessary, top up with an oil recommended in **Tables 5 and 6**

Change differential oil at 30,000 miles (1968-1973), 36,000 miles (1974), or 25,000 miles (1975 on) First, drive a short distance to warm the oil Then remove the filler and drain plugs from the differential or axle housing When the oil has drained, reinstall the drain plug and fill with gear oil recommended in **Tables 5 and 6** Capacity is listed in **Table 8** Reinstall the filler plug after filling

Hydraulic Systems

Check for leaks Inspect the brake master cylinders, calipers (disc brakes), and wheel cylinders for wetness Do the same for the clutch master and operating cylinders, and for all hydraulic line connections

Engine Leak Inspection

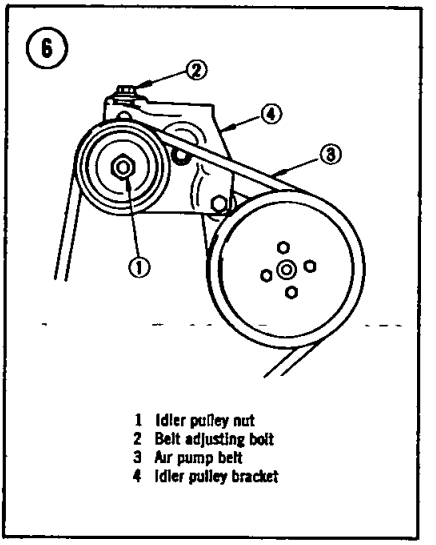
The engine should be checked visually for leaks Check the oil pan drain plug, oil pan gasket, oil filter, and engine front cover On L-series and A-series engines, check the oil pump Greasy-looking dirt at these points may indicate an oil leak Check the radiator and hose connections for coolant residue or rust Check the fuel line connections (fuel filter, fuel pump, carburetors) for wetness that may indicate gasoline leakage

Fan and Air Pump Belts

Check fan belt tension by pressing down on the belt between the water pump pulley and alternator The belt should move approximately ½ inch If tension is incorrect, loosen the alternator mounting and adjusting arm bolts Pull the alternator away from the engine to tighten the belt, push it toward the engine to loosen

The L-series air pump belt (if so equipped) is adjusted in the same manner as the fan belt Check belt tension between air pump and crankshaft pulley, move the air pump to change tension

To adjust the A14 air pump belt (**Figure 6**), loosen the idler pulley nut, then turn the adjusting bolt as needed Tighten the idler pulley nut after adjustment



1 Idler pulley nut
2 Belt adjusting bolt
3 Air pump belt
4 Idler pulley bracket

Throttle Cable or Linkage

Cars use a rod and bellcrank throttle linkage, pickups use a cable Check the linkage or cable for binding and lubricate as needed

Choke Mechanism

On manual chokes, check the choke cable for binding Lubricate as needed On automatic chokes, check the mechanism for sticking Lubricate if necessary with a spray lube such as WD-40

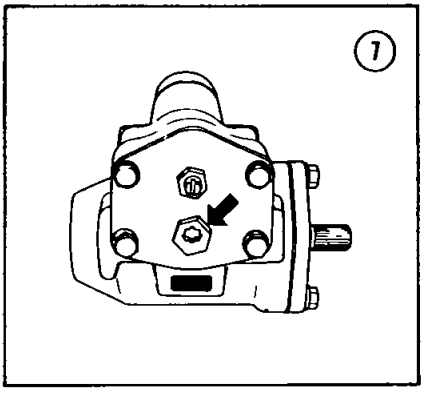
Steering Linkage, Suspension (Cars)

Check the steering gear (rack and pinion on Z sports cars) for looseness Check all fasteners in the front and rear suspensions for looseness

On all except Z sports cars, remove the steering gear filler plug (**Figure 7**) Check oil level and top up as needed Use an oil recommended in **Tables 5 and 6**

On 240Z's only, remove the grease reservoir from the rack housing Pack the reservoir with multipurpose grease and reinstall

At 30,000 miles (1968-1973), 24,000 miles (1974), or 25,000 miles (1975 on), lubricate the tie rod and suspension ball-joints To do this,



remove the grease plug from each ball-joint and install a grease nipple Inject multipurpose grease until all the old grease is forced out

Steering Linkage, Suspension (Pickups)

Lubricate the suspension with multipurpose grease Early pickups have suspension grease nipples, later models have plugs The plugs must be removed and replaced with grease nipples to lubricate the suspension

Inject grease into the screw bushings at the inner end of the upper link, the upper and lower knuckle spindle bushings, and the screw bushings at the outer end of the lower link Refer to Chapter Twelve

Every 12,000 miles (1968-1974) or 12,500 miles (1975 on), grease the steering linkage ball-joints

Hinges, Latches, Locks

Lightly grease the hood latch and trunk or tailgate lock with molybdenum disulphide grease Apply 1-2 drops of oil to hinges on doors, hood, and tailgate or trunk Lubricate striker plates with a non-staining stick lube such as Door Ease Lubricate lock tumblers by applying a thin coat of Lubriplate, lock oil, or graphite to the key Insert and work the lock several times Wipe the key clean

PCV System

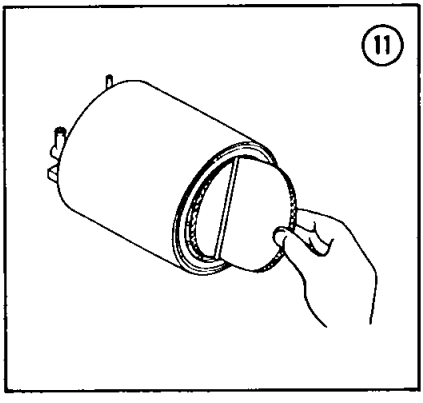
The positive crankcase ventilation (PCV) system is designed to route crankcase emissions into the combustion chambers for burning

1 Replace the PCV valve **Figure 8** shows the valve used on L16, L18, and L20B engines A-series and J13 valves are similar **Figure 9** shows the valve used on L24 and L26 engines The 280Z valve is shown in **Figure 10**

2 Check PCV hoses for leaks and loose connections At alternating service periods, remove the hoses and blow them out with compressed air Replace any hoses which cannot be unplugged

Evaporative Emission Control System

Inspect fuel vapor lines, starting at the fuel tank and working forward Tighten loose connections and replace damaged lines Make sure the lines are secure in their clips and do not rub against any part of the car On 260Z's and all 1975 and later models, replace the filter in the bottom of the carbon canister See **Figure 11**



EGR System

If equipped with exhaust gas recirculation, inspect the system as described in Chapter Five

Cooling System

Inspect all coolant hoses and connections Replace hoses that are cracked, deteriorated, or extremely soft Make sure all clamps are tight

Vacuum Lines

Check emission control system vacuum lines for cracks or deterioration