SERVICE MANUAL

MODEL
L20A, L24 SERIES
ENGINES

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION EG

ENGINE GENERAL

EG

EXTERNAL VIEW OF ENGINE

External view of model L24 engine (SU carburetor)

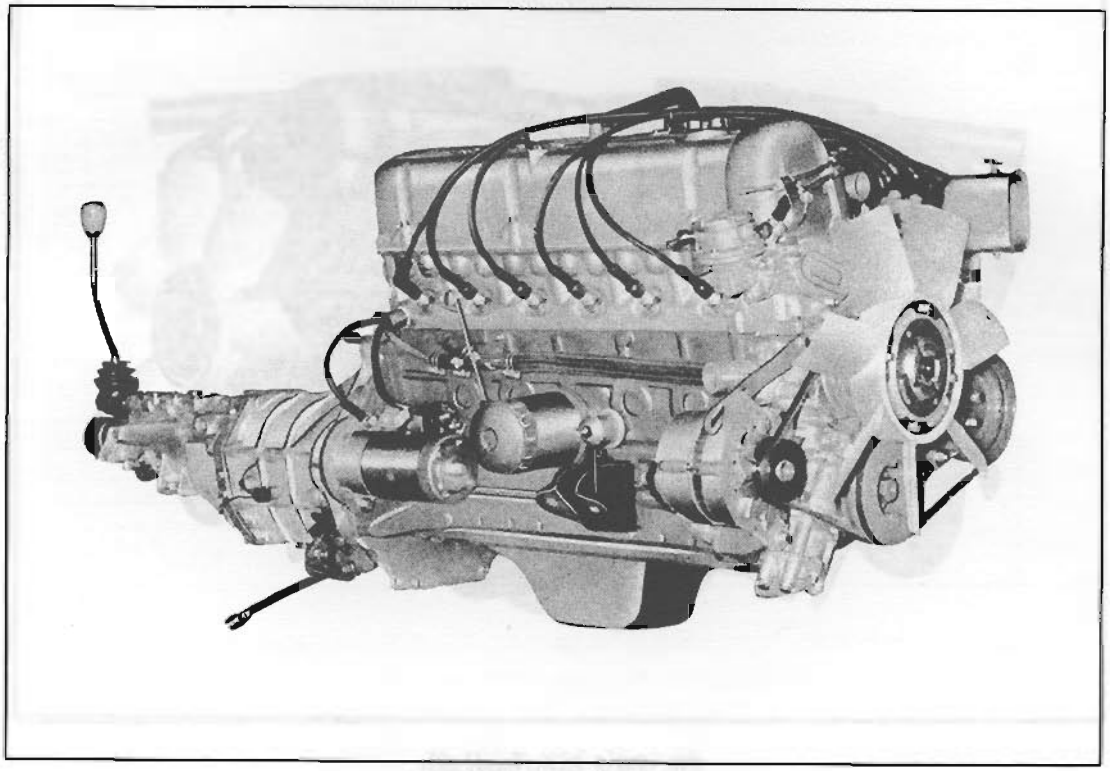


Fig. EG-1 Right hand side

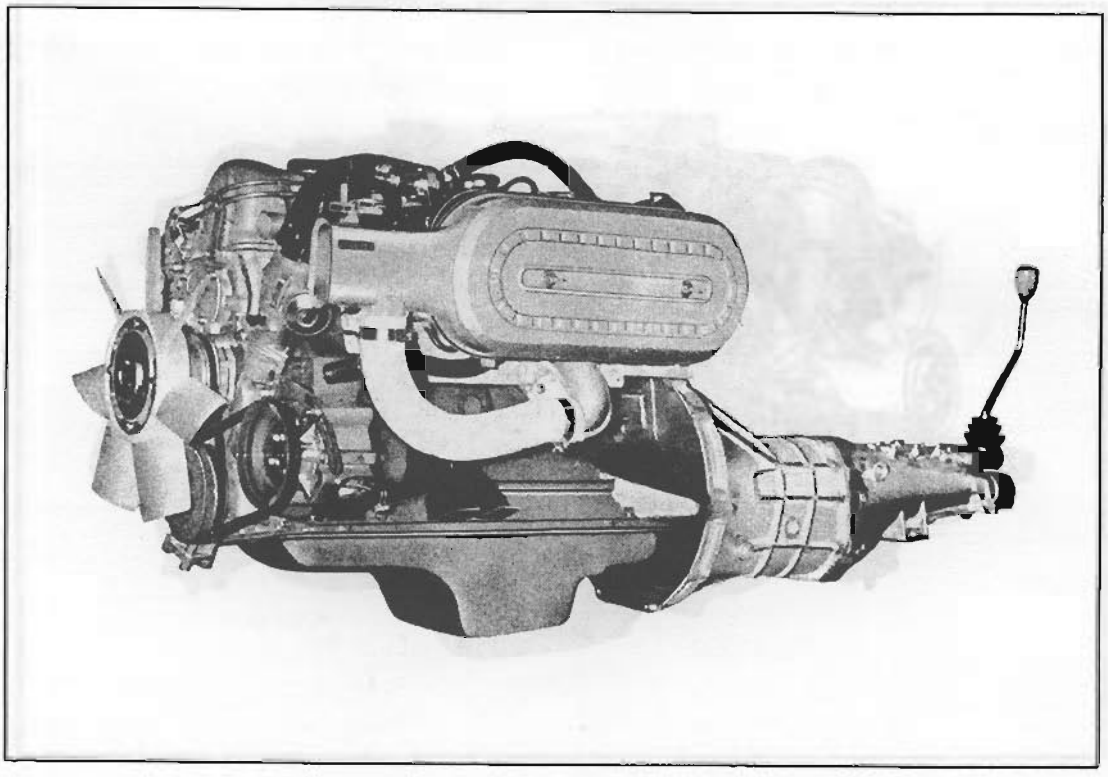


Fig. EG-2 Left hand side

External view of model L24 engine

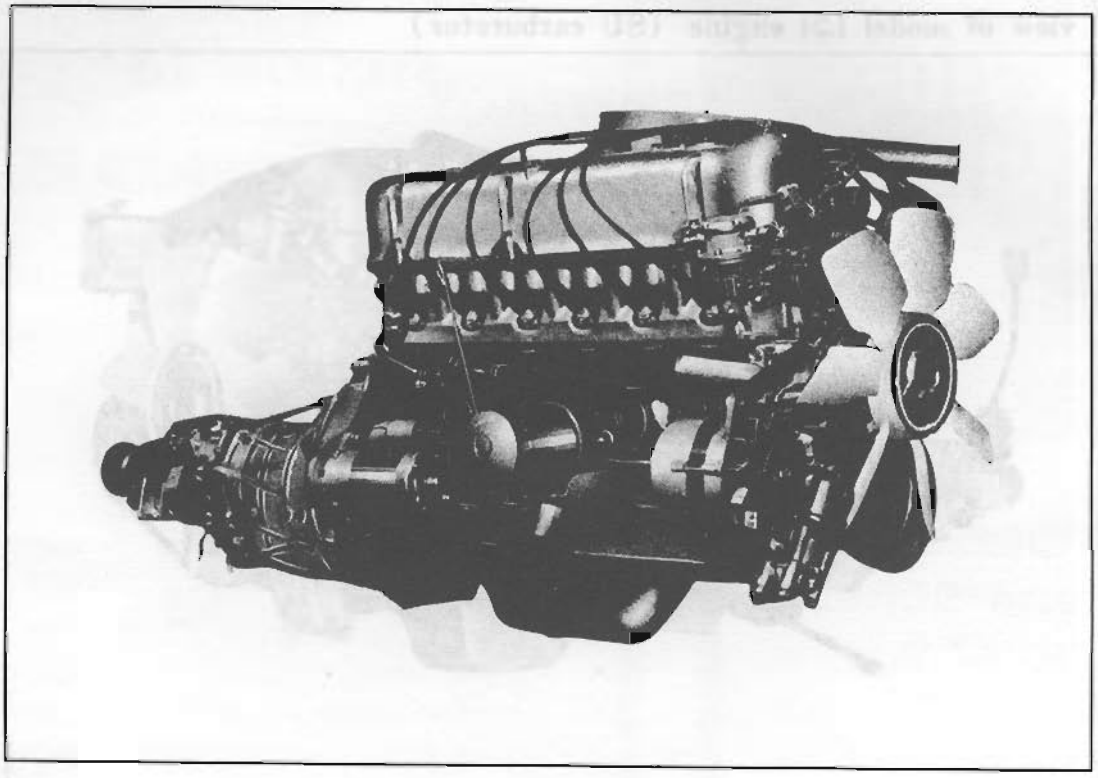


Fig. EG-3 Right hand side

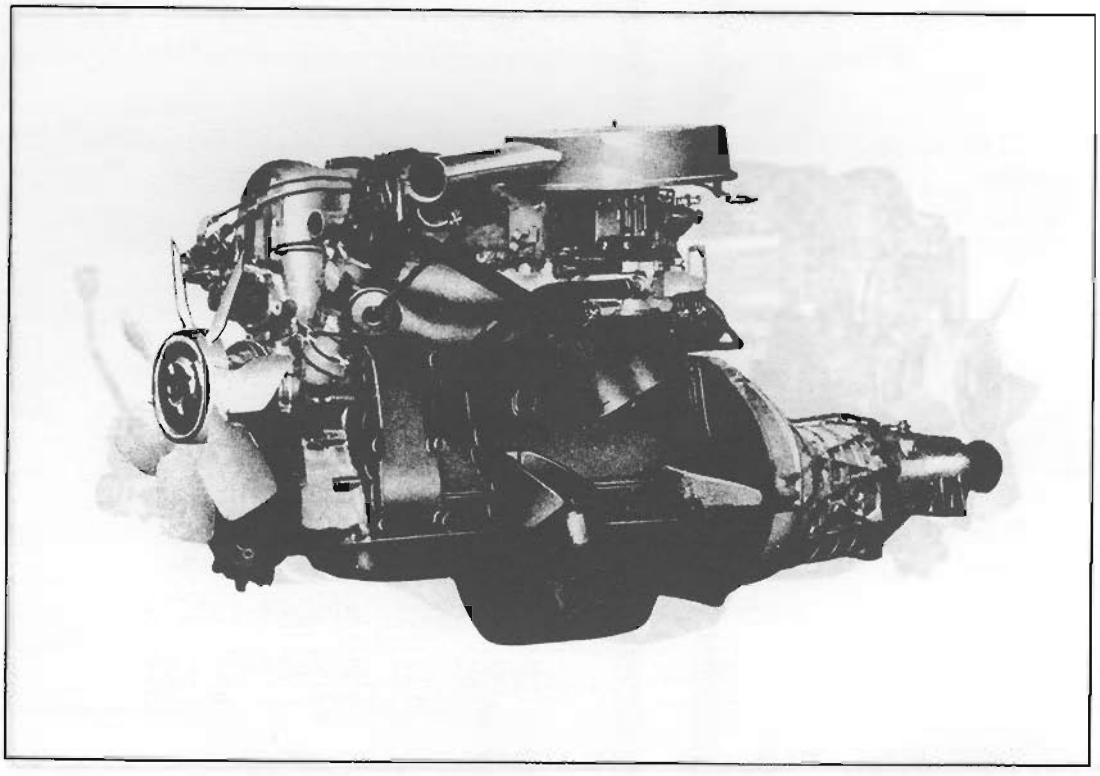


Fig. EG-4 Left hand side

External view of model L20A engine

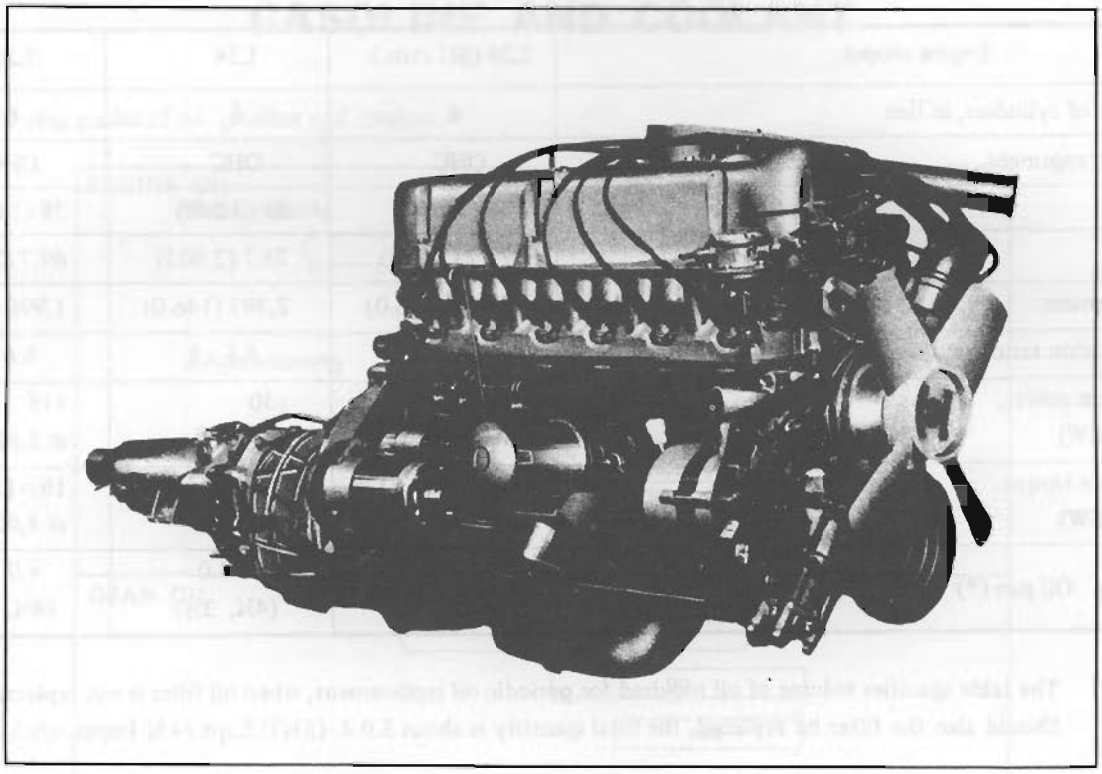


Fig. EG-5 Right hand side

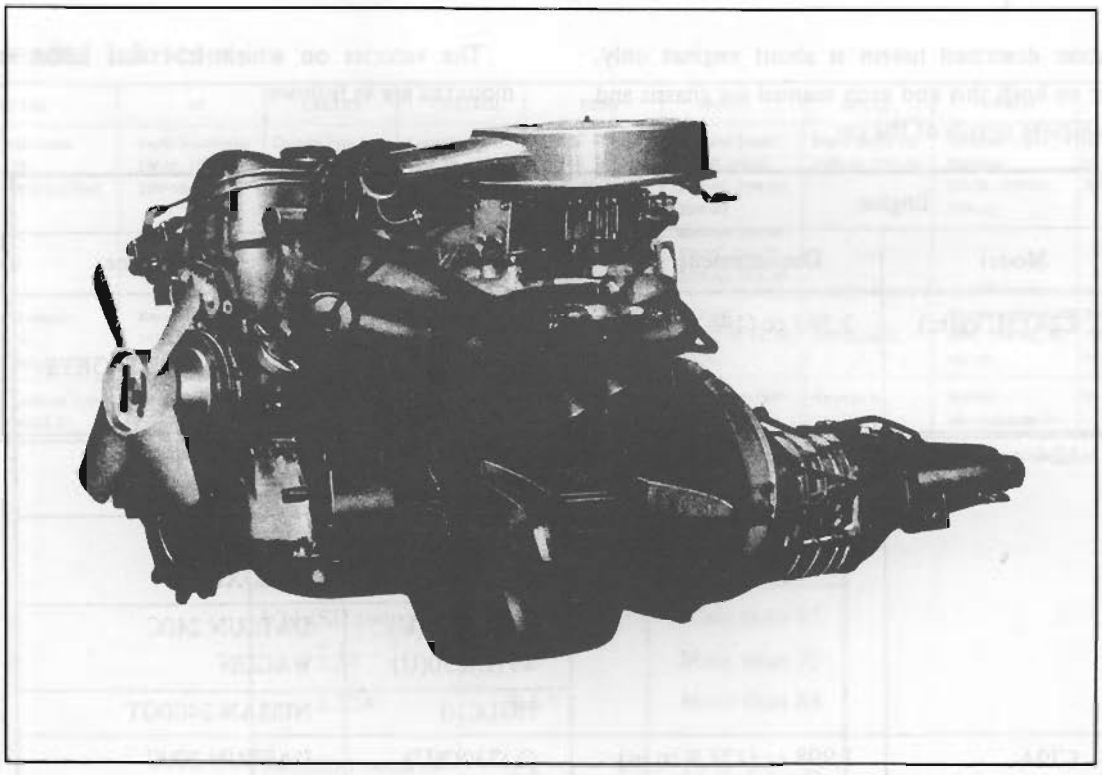


Fig. EG-6 Left hand side

MAIN SPECIFICATIONS

Engine model		L24 (SU carb.)	L24	L20A
Number of cylinders, in line		6	6	6
Valve arrangement		OHC	OHC	OHC
Bore	mm (in)	83 (3.268)	83 (3.268)	78 (3.071)
Stroke	mm (in)	73.7 (2.902)	73.7 (2.902)	69.7 (2.744)
Displacement	cc (cu in)	2,393 (146.0)	2,393 (146.0)	1,998 (121.9)
Compression ratio		8.8 : 1	8.5 : 1	8.6 : 1
Maximum power, SAE (NEW)	HP at rpm	151 at 5,600	130 at 5,600	115 at 5,600
Maximum torque, SAE (NEW)	kg-m (ft-lb) at rpm	20.1 (145.7) at 4,400	20.0 (144.9) at 3,600	16.6 (120.0) at 4,000
Capacity Oil pan (*)	ℓ U.S. qts./Imper. qts.	4.0 (4¼, 3½)	4.0 (4¼, 3½)	4.0 (4¼, 3½)

(*) The table specifies volume of oil required for periodic oil replacement, when oil filter is not replaced. Should also the filter be replaced, the total quantity is about 5.0 ℓ (5¼ U.S.qts./4⅜ Imper. qts.).

VEHICLE REFERENCE

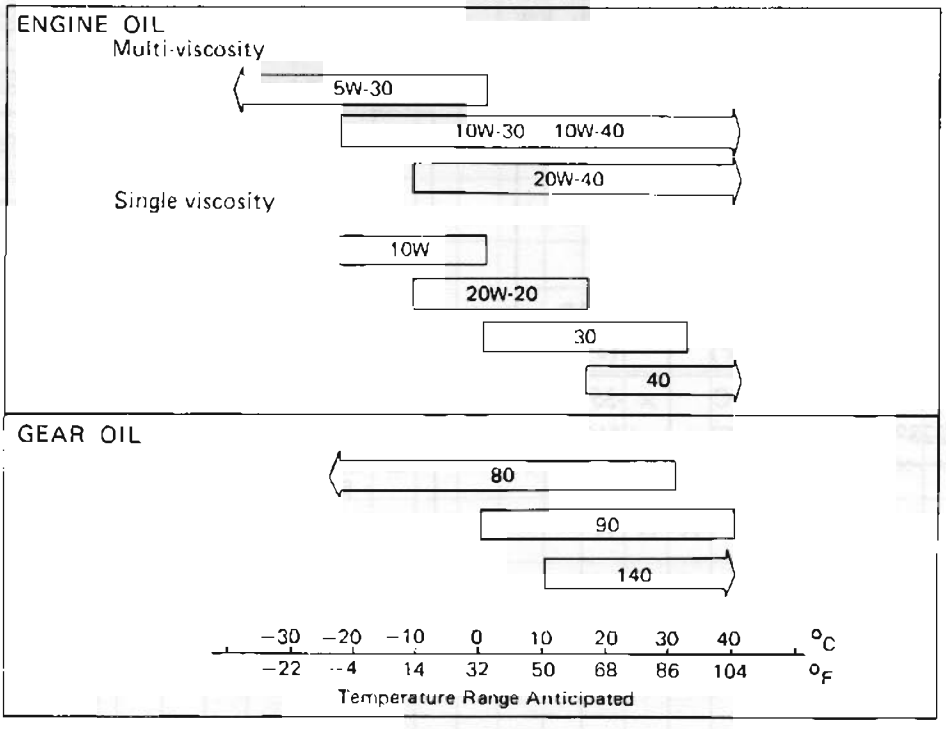
Information described herein is about engines only. Please, refer to both this and each manual for chassis and body for complete details of the car.

The vehicles on which L24 and L20A engines are mounted are as follows:

Engine		Vehicle	
Model	Displacement	Model	Vehicle name
L24 (SU carb.)	2,393 cc (146.0 cu in)	HLS30UV	DATSUN 240Z SPORTS
		H(L)S30(U) H(L)S30Q	
L24	2,393 cc (146.0 cu in)	P(L)230V(U) P(L)230VT(U)	DATSUN 240C CUSTOM DELUXE
		P(L)230Q(U) P(L)230QT(U)	DATSUN 240C DELUXE
		WP(L)230(U) VP(L)230(U)	DATSUN 240C WAGON
		HGLC10	NISSAN 2400GT
L20A	1,998 cc (121.9 cu in)	(L)230Q(U) L230QT	DATSUN 200C DELUXE

RECOMMENDED LUBRICANTS, GASOLINE AND COOLANT

Use the following grades of oil, gasoline and coolant.



Recommended lubricants

PRODUCING			BP	CALTEX	CASTROL	ESSO	MOBIL	SHELL	TEXACO	TOTAL
ENGINE OIL	Gasoline	Multigrade SD MIL-L-2104B	Super Viscostatic 5W-20, 10W-30, 20W-50	Custom Five Star Motor Oil 10W-30, 10W-40, 20W-40, 20W-50	Castrolite 10W-30 XL 20W-40	Uniflo 5W-30, 10W-40 Extra Motor Oil 5W-20, 10W-30, 20W-40	Mobiloil Super 5W-30, 5W-40, 10W-40, 10W-50, 20W-50 Mobiloil Special 5W-20, 10W-30, 20W-40, 20W-50	Super Motor Oil 10W-40, 20W-50	Havoline Super Premium 5W-30, 10W-40, 20W-50	GTS 10W-30, 20W-40, 20W-50
		Monograde SD MIL-L-2104B	Energol HD Oil 10W, 20W, 30, 40	Not available	5HD, 10HD, 20HD, 30HD, 40HD, 50HD	Not available	Mobiloil 10W, 20W-20, 30, 40, 50	Not available	Havoline Motor Oil 10W, 20W-20, 30, 40, 50	Super HD 10W, 20W-20, 30, 40, 50
Multipurpose grease		Lithium soap NLGI 2	Energrease L-2*	Marfak Multipurpose 2*	LM Grease*	Multipurpose Grease*	Mobilgrease MP*	Retinax A	Marfak Multipurpose 2*	Multis*

In case the above brand oils are not available, it is permissible to use oils marked "*."

Engine model	Compression ratio	Octane No. of gasoline
L24 (SU twin)	8.8 : 1	More than 95
L24	8.5 : 1	More than 95
L20A	8.6 : 1	More than 85
Emission control L24 (SU twin)	8.8 : 1	91 (low lead)

Nissan Long Life Coolant (L. L. C.)

This L.L.C. is an ethylene glycol base product containing chemical inhibitors to protect the cooling system against rusting and corrosion. L.L.C. does not contain any glycerine, ethyl or methyl 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. L.L.C. must not be mixed with other product. This coolant can be used through out the seasons of the year and exchange period is two years or total running mileage of 40,000 km (24,000 miles).

Percent concentration	Boiling point		Freeze protection
	Sea level	0.9 kg/cm^2 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)

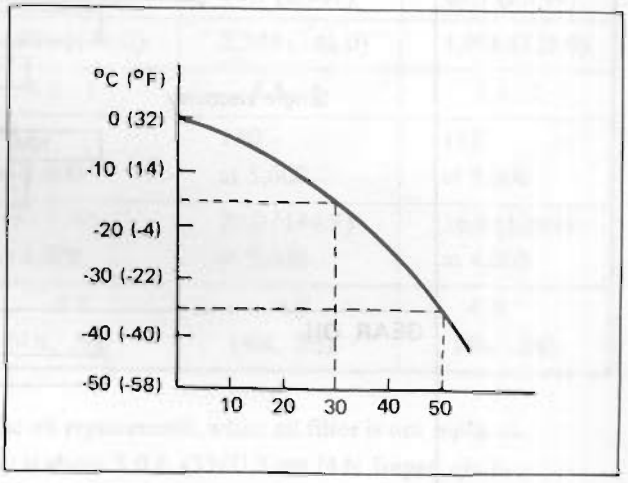


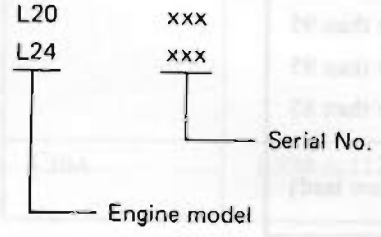
Fig. EG-7 Protection concentration

UNIT SERIAL NUMBER LOCATION

There are two serial numbers for unit identification: the engine number and the chassis number. These numbers are repeated in the car identification plate, which is located in an easy-to-read position.

Engine Serial Number

The engine serial number is stamped in the rear right side of cylinder block, at cylinder head contact surface. The number is preceded by engine model, L20 or L24.



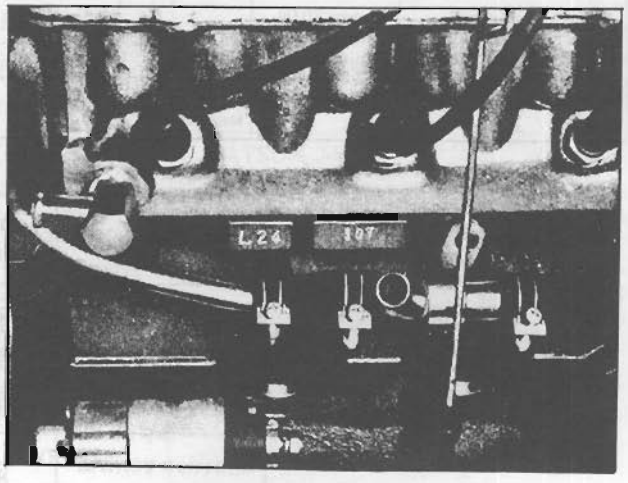


Fig. EG-8 Engine serial number

PERIODICAL INSPECTION AND MAINTENANCE

MAINTENANCE OPERATION	MAINTENANCE INTERVAL											
Number of thousands of kilometers	1	5	10	15	20	25	30	35	40	45	50	90
				55	60	65	70	75	80	85		
Number of thousands of miles	0.6	3	6	9	12	15	18	21	24	27	30	54
				33	36	39	42	45	48	51		
Adjust intake & exhaust valve clearances	X		X		X		X		X		X	X
Check drive belt tension	X		X		X		X		X		X	X
Retighten cylinder head bolts & manifold nuts	X											
Replace oil filter	R		R		R		R		R		R	R
Check engine oil for leaks	X		X		X		X		X		X	X
Change engine oil	R	R	R	R	R	R	R	R	R	R	R	R
Change engine coolant			R		R		R		R		R	R
Change engine coolant (L.L.C.)									R			
Check cooling system hoses & connections					X				X			
Lubricate accelerator linkage			X		X		X		X		X	X
Replace carburetor air cleaner filter (Viscous type)									R			
Clean or replace carburetor air cleaner filter (Dry type)		X	X	X	X	X	X	X	R	X	X	X
Check SU carburetor damper oil level, top up if necessary		X	X	X	X	X	X	X	X	X	X	X
Adjust carburetor-idle r.p.m., mixture ratio		X	X		X		X		X		X	X
Replace fuel filter					R				R			
Check fuel line (hoses, pipings, connections, etc.) for leaks	X	X	X	X	X	X	X	X	X	X	X	X
Check & adjust ignition timing	X		X		X		X		X		X	X
Check distributor breaker point		X	X	X	X	X	X	X	X	X	X	X
Grease distributor shaft & cam heel			X		X		X		X		X	X
Check or replace spark plugs			X		R		X		R		X	X
Check or replace PCV valve					X				R			
Check battery specific gravity	X				X				X			

R: Replacement

SPECIAL MAINTENANCE FOR EMISSION CONTROL SYSTEM

MAINTENANCE OPERATION Number of months or thousands of miles, whichever comes first	MAINTENANCE INTERVAL											
	600 miles	3	6	9 33	12 36	15 39	18 42 54	21 45	24 48	27 51 57	30	60
[E] Adjust intake & exhaust valve clearances	X		X		X		X		X		X	X
[E] Check drive belts tension	X		X		X		X		X		X	X
[E] Retighten cylinder head bolts, manifold nuts & carburetor securing nuts	X								X			
[E] Check engine compression									X			
[E] Replace oil filter	R		R		R		R		R		R	R
Check engine oil for leaks	X		X		X		X		X		X	X
[E] Change engine oil	R	R	R	R	R	R	R	R	R	R	R	R
[E] Change engine coolant			R		R		R		R		R	R
[E] Change engine coolant (L.L.C.)									R			
[E] Check cooling system hoses & connections					X				X			X
[E] Check vacuum fittings, hoses & connections					X				X			X
[E] Check hot air control valve					X				X			X
[E] Replace carburetor air cleaner filter									R			
Check SU-carburetor damper oil level, top up if necessary		X	X	X	X	X	X	X	X	X	X	X
[E] Adjust carburetor - idle r.p.m., mixture ratio	X	X	X	X	X	X	X	X	X	X	X	X
[E] Check choke mechanism (choke plate & linkage)			X		X		X		X		X	X
[E] Replace fuel filter					R				R			R
[E] Check fuel line (hoses, pipings, connections, etc.) for leaks	X	X	X	X	X	X	X	X	X	X	X	X
[E] Check & adjust throttle opener	X		X		X		X		X		X	X
[E] Check & adjust ignition timing	X	X	X	X	X	X	X	X	X	X	X	X
[E] Check or replace distributor breaker points & condensers		X	X	X	R	X	X	X	R	X	X	R
[E] Check operating parts of distributor					X				X			X
Grease distributor shaft & cam heel			X		X		X		X		X	X
[E] Check or replace spark plugs		X	X	X	R	X	X	X	R	X	X	R
[E] Check electrical advance control system					X				X			X
[E] Check ignition wiring					X				X			X
[E] Check or replace PCV valve					X				R			X
[E] Check ventilation hoses					X				X			X
[E] Check manifold inlet (carburetor spacer, connecting hoses, etc.)					X				X			X
[E] Check secondary air injection system hoses					X				X			X
[E] Check air system manifold					X				X			X
[E] Check control valves & air pump					X				X			X
[E] Check engine compartment hose connections					X				X			X
[E] Check fuel vapor control valves					X				X			X

[E]: Affects Emission Control R: Replacement

AFTER FIRST 1,000 KM (600 MILES)

Changing engine oil

Draining is best done after a good run, when the oil, being thoroughly warm, will flow readily and freely and any foreign matter will be held in suspension.

Place a large bowl or other shallow container under the engine. Then remove the oil pan drain plug. Do this carefully, as the oil will be hot and it will spurt out with some force. After compeltely draining the dirty oil off securely replace the oil drain plug and finally refill the engine in the usual way up to the "H" mark on the dipstick. Make sure that the car is on a level surface while draining and filling the engine.

5.28 qts.

Oil capacity

L24 (SU carb.)	5.0 ℓ (1 3/8 U.S.gal.)
L24	5.0 ℓ (1 3/8 U.S.gal.)
L20A	5.0 ℓ (1 3/8 U.S.gal.)

Fan belt tension

Incidentally, we call it the fan belt, but also it drives the water pump and alternator. It is advised, however, to check the tension regularly, so that when the need for adjustment does arise, it is not overlooked. With the engine switched off and the bonnet up, push the belt gently downward. You should be able to depress it about 10 mm (1/2 in). If the fan belt has become slack through wear, loosen the fixing and adjusting bolts, and move the alternator away from the engine. This will eliminate the slack. Tighten the bolts again, and make sure that the belt has been tightened correctly. If tightened excessively it will wear rapidly and also overload the water pump and alternator bearings.

Replacing oil filter

The oil filter is of a full-flow cartridge type. The element of oil filter is sealed in the container as a unit. It can be easily removed by hand. Be careful not to lose the rubber sealing ring. When assembling oil the seal lightly, and when the seal is contacted, tighten by hand further, rotating it about 1/3 of one full turn.

EVERY 10,000 KM (6,000 MILES)

Changing cooling water

Scale or sediment accumulated in water jacket or radiator harms heat radiation. Thoroughly flush the system after opening 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 mild water for filling the radiator. When cold season arrives, the cooling system should be protected against frost with a high quality anti-freeze solution such as a NISSAN LONG LIFE COOLANT. Do not overfill the system. This coolant (L.L.C.) may be changed every 40,000 km (24,000 miles).

EVERY 40,000 KM (24,000 MILES)

Replacing air cleaner element (wet paper type)

The air cleaner uses a wet paper type cleaner element (viscous type). As this element has been manufactured under special treatment, there is no need of cleaning until it is replaced with a new one. Although the cleaner element looks dirty, do not intend to clean. The cleaning performance in constantly maintained although it looks contaminated. Care must be taken not to injure cleaner element.

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT