RESTRICTED

DIRECTORATE GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION
NO 36
NISSAN CARRIER 1TON 4X4
SUMMARY

1. This instruction is published to guide the users for the regular attention, which the vehicle should receive, to keep in good mechanical condition and must be closely followed.

RUNNING-IN INSTRUCTION

2. (a) When operating a new vehicle or and old vehicle with a new or reconditioned engine for the first time, take utmost care during the running –in period of the 1000 km. During the first 500 Km drive the vehicle at a speed not more than 50 Km per hour. In the second 500 km (i.e., from 501 to 1000 Km) the speed must be restricted to 80 Km per hour. Never overload the vehicle in the first 500 Km and avoid towing trailer during the "running-in" period.

(b) On completion of the first 500 Km

(i) Check oil level in the Gear Box, Transfer case and front and axle and replenish if necessary

(ii) Change the engine oil on completion of first 500 Km and subsequently after 1,600 Km will be carried out in Field Workshops.

(iii) Check engine mountings and steering gear brackets regularly. Tighten nuts of spring 'U' clamps (Preferably when the vehicle is laden) and holding down bolts of the body to the chassis. Check wheel nuts for tightness on front and rear wheel often during the running-in period, especially after changing the wheels.

(iv) The vehicle after completion of the running-in period, should be sent to Field Workshops for draining out oil and seeing if any traces of metal are found due to excessive wear. Units will not drain out oil themselves in the unit lines. The Field Workshops will carry out adjustments, and tune up the engine as considered necessary.

ENGINE

3. a) Checking, changing and replenishment of engine oil

(i) Check oil level daily in the oil pan and if necessary fill to 'Full' mark on oil level gauge

(ii) The engine oil is filled from a filler hole on the top of the engine and the qty of oil is measure by the oil level gauge. Oil level should be always maintained between the 'Full' and 'Low' marks of the gauge.

(iii) For a new vehicle after first 500 kms drain out the wheel oil while the engine is till hot, and refill with new oil to the Full mark of the gauge. All subsequent changes should be effected after every 1,600 kms. Once in six months during oil change remove the sump, clean all the sludge and dirt, refill and fill up the sump with oil. Always use correct grade of oil to get best performance out of the engine. Engine oils to be used are shown in the lubrication chart. The capacity of engine is 5.5 liters (1.2 gall)

(b) Oil pressure:-

After starting the engine, it is important that the oil pressure is checked which is indicated on the oil pressure gauge on the instrument board. The oil pressure varies in accordance with temperature of the engine, Climate temperature and the oil viscosity. Minimum oil pressure at operating temperature and normal speed should be d1kg/$cm^{2,}$ and standard oil pressure should be 4Kg/ $cm^{2.}$

(c) Oil filter

(i) Oil filter is fitted at the left side of the engine. Oil by-passed from the oil pipe connecting the oil pump to the oil gauge, is filtered and cleaned and then returns directly to the oil sump.

(ii) Clean inside of filter body with petrol or other cleaning fluid every 1,000 km for new vehicle or when engine is overhauled every 6,400 km or more often, of filter becomes clogged clean inside of filter body and renew filter element and packing. After removing element (or cleaning) refill crankcase to the upper mark on gauge. Run engine a few minutes and recheck the oil level.

(d) Air Cleaner:-

Air Cleaner used is oil bath type. Air cleaner should be cleaned every 1,000 km and its oil level should be maintained to correct level. The oil should be changed maintained to correct level. The oil should be changed every 1,600 km. To clean, remove cover and take out the filter element clean the interior and the element with petrol. Place oil upto the indicated oil level in outer case. Reassemble the element after it has been thoroughly dried. Always fill air cleaner with engine oil.

COOLING SYSTEM:-

4. (a) Check the water level in radiator daily and if necessary, fill upto radiator neck. Always use fresh and clean water. Poor water will clog the radiator and jackets, resulting in insufficient cooling.

Do not use the following water:-

(i) Self water
(ii) Acid Water
(iii) Muddy water
(iv) Other impure water

(b) After every 2,000 Km drain water and wash interior with fresh and clean water. To drain out water open both cocks, one located at the fight side of the engine and the other under the front of the radiator. Flush out cooling system twice a year.

(c) The radiator cap is of the pressure type. Therefore unless the radiator cap is closed securely, the radiator efficiency is lowered. /when changing or making up the water, inspect the rubber packing on the inside of the cap and replace it if it is damaged (always use a rubber packing).

(d) Centrifugal type water pump is provided which is driven by 'V' bolt. Lubricate the water pump bearing monthly or every 2,000 Km with grease no 1. Check the fan belt for tightness. Free movement of the belt should be within 12.70 mm to 19.95 mm (1/2" to ¾").

FUEL SYSTEM

5. Always fill the fuel tank with clean petrol. Make sure that the fuel tank strainer is kept clean. Fuel drawn from the fuel tank is again filtered by the strainer element in the fuel pump. Inspect the bowl from time to time, and if impurities such as dust or water has settled tin it, loosen nut and clean the bowl. Clean strainers every 5,000 km.

IGNITION SYSTEM

6. (a) The ignition system used on NISSAN engines is of the high voltage type utilizing a battery and ignition coil. All parts of the system should be checked at least once every 1,000 Km. Check the connections of the ignition coil cord, the distributor cap and breaker points and spark plugs, See that the system is freeform moisture's Which is liable to cause leakage and misfiring.

(b) Spark plugs used are 14 mm size. Clean and check gap for correctness every 1, 600 Km. The correct gap is 0.75 mm (0.029- in)

(c) Lubricate Distributor Cam, Distributor shaft, Generator and self starter Bearings every 500 Km. Check CB Points and adjust gap if necessary every 1,600 Km. The correct gap is 0.5 mm (0.020-in)

(d) Check battery for the correct electrolyte level. Add distilled water if necessary. The level should be 10 mm (0.394-in) above the surface of the plates. Check specific gravity which should between 1.200 and 1.300. Re-charge battery if below 1.200. Ensure that the battery terminals are kept clean and positive (+Ve) terminal is grounded.

POWER TRANSMISSION

7. (a) Clutch

The clutch used is of dry single-diesel type. Always unsure correct free play of clutch pedal which should be about 25.4 mm (1-in). Adjust free movement of the clutch pedal when necessary by adjusting the release rod connected to the clutch arm. Lubricate clutch pedal and clutch release bearing every month or every 2,000 km.

(b) Gear Box and transfer case

Check Gear Box and Transfer case oil level with every oil change but at least monthly or every 2,000 Km. Replenish When necessary . Replace oil as shown in lubrication chart (every 8,000 km).

© Differential housing front and rear Axles:-

Check oil level periodically (every 2,000 km) Replenish if necessary. Replace as shown in lubrication chart (every 8,000 Km). When draining out old oil, remove the drain plug soon after the vehicle has been driven for a while. The oil will then flow out by it-self after draining out old oil, refit the drain plug, remove filter plug and refill with now oil upto the lower rim of the filter hole.

(d) Wheel bearing s front and Rear Axles:-

The rear wheel bearings are lubricated by applying wheel bearing grease into the interior of the hubs. With long use , however some of the lubricant is consumed metal particles become mixed with remaining lubricant, which then becomes unable to carry out its lubricating function. Degreasing and charging the lubricant, therefore, must be i.e., carried out every month or 2,000 km of driving, and the grease should be changed every 8000 Km.

(e) Propeller shaft and bearings

The universal joint bearings are of needle roller construction and take care of heavy load for their bearing surfaces. The universal joints are provided with means of lubrication for the needle bearings by Cross passages in joint journals and grease fittings on them. Lubrication is made by centrifugal force while propeller shaft is in motion. Universal joints should be lubricated with chassis grease regularly every month or every 2,000 Km.

BRAKES

9. Two independent braking systems exist on this vehicle foot brake system which applies braking force by hydraulic pressure and hand brake which applies braking force on the propeller shaft. Free movement of brake pedal is 12.7mm (1/2-in). always ensure that the brake master cylinder is filled up with hydraulic brake fluid. Check monthly or every 2,000 km and replenish where necessary. When bleeding brakes ensure that the master cylinder is topped up after bleeding. Lubricate following monthly or every 2,000 Km.

(a) Brake Pedal Shaft
(b) Hand Brake lever

SPRINGS AND SHOCK ABSORBERS

10. (a) Springs

Occasionally inspect the springs, retighten the ‘U’ bolts of the springs, and , at the same line, check for broken or weakened parts also add chassis grease through the grease nipples to the spring bolts and shackle bolts every 500 Kms of driving.

(b).Shock absorbers

Both the front and rear shock absorbers are of single acting piston type check shock absorbers monthly or every 2,000 Km for correct fluid level and replenish where necessary with shock absorber fluid.

WHEELS AND TYRES

11. (a) Tyres mounted on the vehicle are 7.50x20, 10 ply in specifications. Always ensure that correct type pressure is maintained. Specified pressure for

(i) Front tyres = 2.8Kg/in^2 (22 lB/$in^{2)}$

(ii) Rear tyres = 4.2 Kg/cm^2

(b) When removing tyres from the rim , remove carefully to avoid damage to the tyres. Careless use of tyre lever can always result in damage. After removing tyre, remove any rubber or rust deposit from the rim and paint over the latter.

Before refitting tyre, powder this inner tube and rim gather with fresh chalk. The tyres will be removed every 6 months and rim painted with paint PFU black Anti-corrosive acid and alkali resisting HA/0204.

BODY WORK

12. Check body holding down bolts and all nuts and bolts on the springs, axles, chassis from time to time and tighten when necessary touch up damaged paint work where necessary. Lubricate all door latches and grease chassis lubricating points every 2,000 Km.

LUBRICATION CHART

13. The lubrication chart indicates the lubricating points ,the frequency of lubrication and t he type of lubricant used. The chart is self explanatory and should be followed correctly for efficient maintenance Oil recommended under column ‘Winter’ is for ambient temperature -15^0 F $+32^0$ F and under column ‘Summer’ + 32^0 F and above.

NISSAN TRUCK LUBRICATION CHART

Front spring bolt	-	CG@	OE @	-	Generator
Front Axle	-	WG @@	*@@	-	Front axle
Universal joint	-			-	Differential
Front wheel bearing	-	*WG @@@	**OE@	-	Engine
Front shock absorber	-	SAF @@	CG @@	-	Drag link
Tie rod socks	-	CG @@	*GO@@	-	Steering Gear
Air Cleaner	-	*OE@@	OE@	-	Starter Motor
Water pump bearing	-	CG@@	WG@@	-	Clutch release bearing
Front spring bolt	-	CG@	CG@@	-	Break pedal shaft
Distributor can	-	OE@	CG@@	-	Clutch pedal
Distributor shaft	-	CG@	CG@@	-	Sleeve Yoke
Transmission	-	*GO@@	CG@@	-	Universal joint
Transmission case	-	*GO@@	*BF@@	-	Brake Master cylinder
Universal joints	-	CG@@	OE@@	-	Transfer case control lever
Sleeve Yoke	-	CG@@	OE@@	-	Side brake lever
Rear spring bolt	-	CG@@	CG@@	-	Universal joint
Rear wheel bearing	-	*WG @@@	GO@@	-	Rear axle differential
Rear shock absorber	-	SAF@@	OE@@	-	Pintle hook joint pin
Rear spring bolt	-	CG@		-	

TABLE –I

	Lubricant	Oil Recommended		lubrication necessary
		Winter	Summer	
OE	ENGINE OIL	10D	30HD	@Every 500 Km
GO	GEAR OIL	50 HD	C 600	@Every 500 Km
CG	CHASSIS GREASE	Grease No 0	Grease No 1	@@Every month or 2,000 kms
WG	WHEEL BEARING GREASE	Grease No 0	Grease No3	@@ Every 2000 Km
BF	BREAK FLUID	HBF No 3	HBF No 3	@@@ Every 8000 Kms
SAF	SHOCK ABSORBER	Shock absorber	Fluid light	@@@ Every 8000 Kms

Remarks:- 1. @ Marks indicate the points needing lubrication RH and LH at the same time.

2. * Replace every 8000 km
3. ** Replace every 1,600 Km

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