

DIRECTOR GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION NO 226
OF
MARUTI GYPSY KING MPFI

Introduction

1. Maruti Gypsy King MPFI 4WD 1298 CC RHD petrol driven with hard top/6 gear/ speed with standard accessories Bharat stage III(Eqvt EURO III) competent.
2. To prolong the life of your vehicle and reduce maintenance cost, the periodic maintenance must be carried out according to the 'periodic maintenance schedule described in 'inspection and maintenance' section of this GMI. Periodic maintenance is essential for preventing trouble and accident to ensure yore satisfaction and safety. Daily care and inspection is essential for prolonging the operating life of the vehicle and for safe driving, it also reduce the wear and tear on your vehicle, prolongs its life, give more mileage, if failure of the guide lines below can result in personal injury or serious damage to the vehicle. All information and instruction in this GMI is based on the latest Owner's manual and service booklet.

AIM:-

The instruction are issued as guide lines for schedule of preventive maintenance, lubrication of Maruti Gypsy King MPFI manufactured by Maruti Udyog Ltd for regular attention to keep the vehicle in good mechanical condition and it must be strictly followed.

Action by

- (a) **User Unit** :
To carry out periodic inspection and monitor regular/periodical maintenance as laid down in this instruction and record the tasks done in the log book.
 - (b) **Field Wksp (GREF)**
 - (i) To carry out and monitor, maintenance schedule and oil changes as per periodical maintenance laid down in the maintenance instructions and to check the record of maintenance including lubrication.
 - (ii) To advise the user unit in respect of any lapses noticed
 - (c) **Mobile maintenance team** :
To ensure that proper maintenance is carried out and report accordingly to Task Force Commander and OC Fd Wksp for necessary action
4. **Details:** The details of maintenance and lubrication with their periodicity are as under :-
- | | |
|-------------------------------------|------------|
| (a) Periodical maintenance schedule | - Appx 'A' |
| (b) Driving tips and safe driving | - Appx 'B' |
| (c) Safety precaution | - Appx 'C' |
| (d) Lubricants and coolant | - Appx 'D' |
| (e) Tech specifications | - Appx 'E' |
5. Please ack receipt.

(Hari Prakash)
SE (E&M) FS
Dir (Tech)
for Dir Gen Border Roads

Distribution

Normal

PERIODIC MAINTENANCE:-

A----Adjust
 T---- Tighten
 R---- Replace or change
 I----- Inspect

C---- Clean
 O---- Rotate
 L---- Lubricate

This interval should be judged by odometer reading or months, whichever comes first	Kms Months	Periodic maintenance service at cost					
		1,000	5,000	10,000	20,000	30,000	40,000
		1	6	12	24	36	48
ENGINE							
1. Water pump drive belt (tension, wear)		A	I	I	I	I	R& A
2. Engine coolant (level, leakage)		I	I	I	R	I	R
3. Engine oil and oil filter		R	I	R	R	R	R
4. Cooling system hoses and connection(leakage, damage)		I	I	I	I	I	I
5. Engine bolt(All cyl head & manifold fixing)		-	-	T	-	T	-
6. Engine mounting (loose, damage)		-	-	T	-	T	-
7. Valve clearance		-	A	-	A	-	A
8. Cam shaft timing belt (damage, wear)		-	-	-	I	-	I
9. Exhaust system(noise, leakage or defective)		-	I	-	I	-	I
10. Positive crank case ventilation system(hoses, connections and valve)		-	I	-	I	-	I
IGNITION							
1. Ignition wiring (damage, deterioration)		-	-	-	I	-	I
2. Spark plugs (clean & adjust the gap)		-	-	I	R	I	R
FUEL							
1. Air cleaner		Clean every 5,000 Kms& replace every40,000 Kms					
2. Accelerator cable and throttle shafts		-	I&L	I&L	I&L	I&L	I&L

3. Fuel tank cap, fuel line & connections (leakage and damage)	-	I	-	-	-	I
4. Fuel filter (leakage)	I	I	I	I	I	R
CLUTCH & TRANSMISSION						
1. Clutch pedal (play)	I	I	I	I	I	I
2. Clutch slipping (dragging or excessive play)	I	I	I	I	I	I
3. Manual transmission/transfer & differential oil (level, leakage)	I	I	I	R	I	R
PROPELLER SHAFTS						
1. Propeller shafts (Play)	-	-	I	I	I	I
2. Universal joints (slack)	-	-	I	I	I	I
WHEEL						
1. Tyres (Air pressure, abnormal wear, crack, rotation)	Rotate and inspect every 5,000 Kms					
2. Wheel (damage)	I	I	I	I	I	I
3. Front wheel bearings (loose, damage)	-	I	I	I	I	I
4. Rear wheel bearings (loose, damage)	-	I	I	I	I	I
BRAKE						
1. Brake fluid (level)	I	I	I	R	I	R
2. Brake pedal (pedal-to-wall clearance)	I	I	I	I	I	I
3. Parking brake lever and cable (play & damage)	I	I	I	I	I	I
4. Brake discs & pads (wear)	-	I	I	I	I	I
5. Master cylinder & wheel cylinder (oil leakage)	I	I	I	I	I	R
6. Brake hoses and pipes (leakage, damage)	I	I	I	I	I	I
FRONT AND REAR SUSPENSION						
1. Suspension strut (leakage, damage)	I	I	I	I	I	I
2. Suspension arms and knuckle supports (loose, damage)	-	I	I	I	I	I
3. Rear spring (damage)	-	I	I	I	I	I
4. Shock absorber (leakage, damage)	I	I	I	I	I	I
5. All bolts and nuts (loose)	-	T	T	T	T	T

6. Suspension arms and tension rods	-	I	I	I	I	I
STEERING						
1. Steering wheel (Play, loose)	I	I	I	I	I	I
2. Steering gear box(loose, damage)	I	I	I	I	I	I
3. All rods and arms(loose, damage, wear)	I	I	I	I	I	I
ELECTICAL						
1. Battery electrolyte(level, leakage)	I	I	I	I	I	I
2. Wiring harness connection(looseness, damage)	-	I	I	I	I	I
3. Lighting system(operation, stains, damage)	I	I	I	I	I	I
4. Horn (operation)	I	I	I	I	I	I
5. System voltage	-	I	I	I	I	I
BODY						
1. All chassis bolts and nuts(tighten)	-	I	T	T	T	T
2. All latches, hinges & locks (function)	I	I&L	I&L	I&L	I&L	I&L
3. Wash your vehicle frequently						
ROAD TEST						
1. Operation of brakes, Gear shifting& speedometer	I	I	I	I	I	I
2. Body and chassis noise	I	I	I	I	I	I

(1) DRIVING TIPS AND SAFE DRIVING:

- (a) Wear seat belts at all times while you drive the vehicle.
- (b) Never drive while under the influence of alcohol or other drugs. Alcohol and drugs can seriously impair your ability to drive safely, greatly increasing the risk of injury to your self and others.
- (c) You should avoid driving when you are tired, sick, irritated or under stress.
- (d) Don't attempt to take curves at the same speeds that you would in a vehicle with a lower gear center of gravity.
- (e) The stability of any vehicle will be affected by strong gusting cross winds. This is especially true with small four wheel drive vehicles, because of the higher center of gravity to minimize the effects of cross winds on your vehicle you should drive slower under such condition.

HIGH SPEED DRIVING:-

When driving at a high speed, pay attention to the following.

- (a) Stopping distance progressively increase with vehicle speed. Apply the brakes for enough ahead of the stopping point to allow for the extra stopping distance.
- (b) On rainy day," Aquaplaning can occur." Aquaplaning is the loss of direct contact between the road surface and the vehicle tyres due to the water film forming between them. Steering or braking the vehicle while" Aquaplaning" can be very difficult, and loss of control can occur. Keep speed down when the road surface is wet.
- (c) At high speeds, the vehicle may be affected by side winds. Therefore, reduce speed and be prepared for unexpected buffeting, which can occur at the exits of tunnels, when passing by a cut of a hill, or when being overtaken by large vehicles etc.

DRIVING ON HILL:-

- (a) When climbing steep hills, the vehicle may begin to slow down and show a lack of power, if this happens, you should change to a lower gear so that the engine will be operating in its normal power range.
- (b) When driving a down hill, the engine should be used for braking by shifting to next lower gear.

- (c) When descending a down hill, never turn the ignition key to the 'OFF' position. Result emission control system may damage.

DRIVING ON SLIPPERY ROAD:-

- (a) Under wet road condition you should drive at a lower gear speed than on dry roads due to possible slippage of tyres during braking. When driving on Icy, snow covered, or muddy roads reduce your speed and avoid sudden acceleration, abrupt braking or sharp steering movement, use 4-wheel drive high range (4H) for better traction.

SNOW CHAIN:-

If you use snow chains to increase tyre traction, observe the following precautions

- (a) Choose a safe place away from traffic to install the chains.
- (b) When installing the chains carefully follow the manufacturer instructions.
- (c) With the chains on drive only at slow and moderate speeds.
- (d) Use 4- wheel drive high vaugue (4H) for better traction and directional stability.

OFF ROAD DRIVING:-

When you are driving on off-road for different driving techniques is used than from paved roads.

STEEP INCLINE REQUIRES CAUTION:-

- (a) Never drive your vehicle up and extremely steep incline. Coming down a steep hill can be tricker than getting up one.
- (b) Keep the vehicle heading straight down the hill on low gear.
- (c) Don't lock the brakes, if the vehicle begins to slide, accelerate slightly to regain steering control.
- (d) Do not drive across the side of hill.
- (e) Avoid sudden reaction in mud, Ice, or snow. Make sure your vehicle tyres in good condition and always maintain the specified tyre pressure.

DO AND DON'TS FOR SAFE DRIVING:-

Exercise care in handling your vehicle. Be conscious of not only your safety but also the safety of other on the road, and thus enjoy the best and most comfortable driving experience. Please read this section carefully.

- (a) Adjust the driver's seat for the proper driving posture.
- (b) Adjust the rear view mirror so as to obtain the best possible rear view.

- (c) Before moving off, look forward and back to confirm safety.
- (d) Don't start quickly, for it is dangerous and wastes fuel.
- (e) Always follow other vehicles at a safe distance in order to prevent a rear end collision, should the vehicle ahead make a sudden stop.
- (f) Turn on the turn signal at least 30 meters before making a turn or change the lane so as not to be hit from behind.
- (g) When over taking other vehicle's, watch out for the on coming vehicle and care fully confirm the safely.
- (h) Don't attempt zig zag driving which will hinder your control over the vehicle and cause an accident.
- (J) Use the parking brake when parking your vehicle and shift the gear in to Ist gear or reverse gear position for the sake of safety.
- (k) When driving on a down hill, try not to apply the brake but use the engine brake effectively. Over us the foot brake may result in brake failure.
- (l) Avoid reckless high speed driving and try to drive at a safe speed suitable for the road conditions while maintaining a constant speed.
- (m) Never do sharp handling during high speed driving. You will loss your control over your vehicle.
- (n) When over taking or changing the lane while driving at a high speed, keep an sample vehicle distance.

LONG DISTANCE DRIVING:-

- (a) Be sure to perform safety checks before starting a trip.
- (b) Take rest at certain intervals to prevent an accident which may occur when you are sleepy or tired.

NIGHT TIME DRIVING:-

- (a) Derive more slowly at night than in the day time, for the visual range is restricted at night.
- (b) Don't over take other vehicles at night, darkness bothers your sense of speed and hinders your judgment on the vehicle- to-vehicle distance.
- (c) Always keep the window glasses clean.
- (d) Don't operate the wiper motor when the wind shield glass is dry, it may damage the glass and blades.

SAFETY PRECAUTION:-

You should take extreme care when working on your vehicle to prevent accidental injury. Some precautions that you should be especially careful to observe:-

- (a) Don't leave the engine in running condition.
- (b) When the engine is running, keep hands, clothing, tool and other objects away from the fan and water pump belt.
- (c) Don't touch ignition wires or other ignition system parts when starting the engine or engine is in running condition.
- (d) Be careful not to touch hot exhaust components such as the manifold, pipes and mufflers.
- (e) Don't allow smoking, sparks or flames around gasoline or the battery.
- (f) Keep used oil, coolant and fluids away from children and pets. Dispose of used fluids properly.
- (g) Rear shock absorber are filled with high pressure gas. Never attempt to disassemble it or through it in to a fire. Avoid storing it near a heater or heating device.
- (h) All maintenance should be carried out with the ignition switch in the "OFF" position.
- (j) When the engine is in running condition. Keep hands, hair, clothing, tools away from the fan and drive belt.
- (k) Spark plug should be checked periodically for carbon deposit. When carbon accumulates on a spark plug, a strong spark may not be produced. Remove carbon deposits with a wire or pin and adjust the spark plug gap.
- (l) Never use spark plugs with the wrong thread sizes or length.
- (m) Brake fluid should be replace every 2 year or 20,000 Kms
- (n) Check the parking brake for proper adjustment.
- (o) Check the play of the steering wheel by gently turning it from left to right and turn easily /smoothly. If find any thing else to be wrong rectify it timely.
- (p) Battery produces flammable hydrogen gas. Keep flames and sparks away from the battery or an explosion may occur.
- (q) Use th jack only to change wheels.
- (r) Never jack up the vehicle with inclined surface.
- (s) Never run the engine when the vehicle is supported by the jack.

- (t) Vehicle equipped with electronic fuel injection system will not start by pushing or towing as the fuel pump will not work in this condition. This starting method could also result in permanent damage to the catalytic converter. Use jump lead to start a vehicle with a weak or medium charge battery.
- (u) Air pressure should be checked when the tyre are cold or you may get inaccurate reading.
- (v) Check inflation time to time while inflating the tyre gradually.
- (w) Check that the treads groove of tyres is found less than 1.6mm (0.06 in), tyre should be replaced with new one.
- (x) Hitting curbs and running over rocks can damage tyres and affects wheel alignment. Be sure to have tyres and wheels alignment checked periodically.
- (y) It is important to ensure proper steering and handling of the vehicle. Never mix tyres of different size or type, may result in false speedometer reading.
- (z) To avoid uneven wear of tyres and to prolong their life, rotate the tyres as illustrated. Tyre should be rotated every 5,000 Kms as recommended in the periodic maint schedule.
- (aa) To avoid damage to your vehicle during towing, proper equipment and towing procedures must be used. Safety chain should always be used.

Appx'D'

LUBRICANTS

Engine oil – 20W-40/20W-50

Gear oil - SAE 90,75W-90 or 80W-90

Coolant - High quality ethylene glycol antifreeze coolant

TECHNICAL SPECIFICATIONS

Over all length	4010 mm
Over all width	1540 mm
Over all height	1875 mm (Soft top)
	1845 mm (Hard top)
Wheel base	2375 mm
Tread Front	1300 mm
Rear	1310 mm
Ground clearance	210 mm
Gross Weight	1585 kg (Soft top)
	1620 kg (Hard top)
Seating capacity	8 persons
Engine type	G13 B- Four stroke cycle,16 valve, water cooled (SOHC)
Number of cylinders	4
Bore	74.0 mm
Stroke	75.5 mm
Piston displacement	1298 cm ³
Compression ratio	9.2:1
Standard spark plug	NGK- BKR6EU, DENSO – K20PRU
Battery	12 V 28 AH
Head light	12 V 45/40 W
Turn signal light	12V 21 W
Side turn signal light	12V 5 W
Clearance light	12V 5 W
Tail brake light	12V 5/21 W
Registration plate light	12V 10W
Reversing light	12V 21 W
Tyre size front & rear	F78-15-\$ PR
Tyre pressure front	1.4 Kg/cm ²
Rear	1.4 Kg/cm ² (light load)1.8 Kg/ cm ² (full load)
CAPACITY	
Coolant(Including reservoir tank)	4.8 L
Fuel tank	40 L
Engine oil	4.2 L(Replacement with oil filter)
Transmission oil	1.3 L
Transfer gear box oil	0.8 L
Differential oil Front	2.0 L
Rear	1.5 L