

DIRECTOR GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION NO 227
OF
CAR AMBASSADOR 1800 ISZ MPFI

Introduction

1. Car Ambassador 1800 ISZ MPFI is an environment friendly Car, MPFI is installed in the Car to ensure right amount of fuel at right time, better cold starting and reducing exhaust emission to meet Euro-II (BS-II) norms. All functions are carried out by the use of SENSOR technology. Six Sensor unit to detect the Engine condition. Electronic control unit (ECU) is based on signal from 6 Sensors and 7 Actuators keeping in view of the detrimental effect to auto exhaust emission and subsequently to meet the revised pollution control regulation i.e, Euro-II (BS-II) Norms. Hindustan Motors have installed multi point fuel injection (MPFI) system with Catalytic Converter in this Car. The Catalytic Converter is very much sensitive to loaded petrol and fuel additives. Every car requires maintenance towards engine, fuel system and related electrical parts. Useful information on MPFI system and Catalytic Converter are given in this GMI. All instructions be adhered to strictly to get optimum performance and more efficient service life. Preventive chapter should be kept in mind to avoid damage to Catalytic Converter and other components of this Car.

2. This GMI is essential for the functioning of car 1800 ISZ. You will find all the information required to maintain your Car in first class condition, together with points of attention which contribute to trouble free, satisfactory service.

3. During the early life of the Car a certain amount restraint and the observance of a few simple precautions will pay rich dividend in the form of longer, smoother engine/vehicle life better performance, lower oil consumption and greater all round mechanical silence.

4. To prolong the life of your vehicle and reduce maintenance cost, the periodic maintenance must be carried out according to the 'periodic maintenance schedule'. Periodic maintenance is essential for preventing trouble and accident to ensure your 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 Car Ambassador 1800 ISZ MPFI manufactured by Hindustan Motors 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) | Routine care & maintenance system | - Appx 'A' |
| (b) | Hints for driver | - Appx 'B' |
| (c) | Recommended oil and greases | - Appx 'C' |
| (d) | Recommended oil and greases optional lub | - Appx 'D' |
| (e) | Technical data | - Appx 'E' |
| (f) | Maintenance schedule | - Appx 'F' |

5. Please ack receipt.

Sd/xxxxx
 (V K SHARMA)
 SE (E&M)
 D Dir (Tech)
 for Dir Gen Border Roads

Distribution

Normal

ROUTINE CARE AND MAINTENANCE

CANISTER:- To prevent escape of gasoline vapor from the Fuel tank and consequent pollution in the atmosphere, evaporative emission control system has been introduced in all ambassador classic 1800 ISZ cars. Canister is mounted on the assy dash panel centre.

MAINTENANCE:-

1. The canister is a completely sealed unit, if due to any circumstances canister got faulty be changed new one.
2. Check if al tubes, flexible hose and canister mounting bracket are securely fitted or not if required tightens tight if properly.
3. Don't over tighten the canister clamp.
4. If any hose or line is oil-soaked or cracked, replaced it by fuel resistant hoses.
5. Don't attempt to open the canister under any circumstance, Once opened, the canister become useless.
6. During the servicing or cleaning of the vehicle, care should be taken to ensure that water, oil; etc do not enter the canister through pipe.
7. Start your car in first gear only. Use the transmission freely to avoid letting the engine labour.
8. This car has a diaphragm – type clutch. Don't ride the clutch pedal. Always keep your foot off the clutch pedal, except when actually depressing it.
9. Don't jumps start the vehicle, if equipped with MPFI system.
10. Always maintain minimum 10 Lts petrol in fuel tank.
11. Don't interchange battery polarity.
12. Regularly check the clutch pedal, play with your foot, and have it adjusted if found less than 12mm.
13. Don't switch 'OFF' engine while vehicle in motion or going down hill.
14. Switch 'OFF' engine if you are idling beyond one minute.
15. Service your car from only authorized dealers/workshop.
16. Don't tamper any part of vehicle and do not let road side untrained mechanic carry out any repairs.
17. Before attempting to start the engine ensures and check the cooling system is full, engine oil level is correct, adequate fuel is in the fuel tank, no leakage from the fuel, oil, brake & cooling system.
18. Avoid excessive full throttle operation and/or high engine speed, particularly in the intermediate gears.
19. Don't drive all the constant speed, neither fast nor slow very your speed from time to time and use the transmission freely to avoid letting the engine labour.
20. Ensure proper equipment is used to prevent damage to the car during towing,
21. Never use cell phone while driving the car.
22. Spark plug points should be clean and the point gap correctly adjusted. The plug should be clean and dry externally.
23. The filter before the fuel pump should be free from dirt and water.
24. The manifold and other gas-tight joint should be free from leaks.
25. Wiring connections, all high tension and low tension terminals should be clean and tight.
26. Check radiator coolant level and top up if necessary.

27. Don't fill up the reservoir by pouring coolant (Antifreeze-cum-inhibitor) in hot engine allow engine to cool down, otherwise cylinder head may cracked.
28. Maintain the recommended inflation pressure by checking with an accurate tyre gauge at least once in a week.
29. Don't keep the starter motor engaged for more than 15 second at a time.
30. After starting the engine, let it warm up without pressing on the accelerator pedal and be sure that the oil pressure and charging indicator lights go out.
31. When driving deep water may wet the brakes and adversely effect brake performance. Apply the brake tightly to dry them quickly until brake performance return to normal.
32. Check the coolant level in the radiator not in the bottle.
33. Check tyre pressure regularly including the spare tyre.
34. Avoid unnecessarily harsh acceleration braking and cornering.
35. Save electronic fuel pump from wear due to dust/rust particles in petrol. Change the filter which is fitted before the inlet of the pump. This pump is not repairable and should be replace when defective.
36. Check and tighten the cylinder head bolt, all nuts, clamp on the exhaust system also check the engine mounting bracket.
37. Check the hydraulic brake fluid level in the reservoir and top up if necessary.
38. Clean condenser during the regular service of the car.
39. Maintain proper refrigerant level.
40. Check proper belt tension.
41. Don't operate A/C without refrigerant in the system.

HINTS FOR DRIVER:-

Before driving following checks should be performed to maintain safe and dependable car operation:-

1. Check tyre for inflation pressure and damage.
2. Check wheel nut for looseness.
3. Check rear leaf spring for damage.
4. Check operation of lights
5. Check for any oil, water, fuel and brake fluid leakage
6. Check steering wheel play and looseness in mounting.
7. Check hand brake lever travel.
8. Check operation of horns, windshield wipers and turn signals
9. Check operation of instruments and indicator lights
10. Check level in fuel in fuel tank in fuel gauge.
11. Check the setting angle for rear view mirrors
12. Check the operation of the door lock mechanism.
13. Check clutch pedal free play, height and function
14. check engine oil level
15. Check fan belt tension
16. Check the level of power steering fluid.
17. Check the tension of the drive belt for power steering oil pump.
18. Check the engine coolant level in the radiator.
19. Check the level of windshield washer solution in the serge tank.
20. Check the level of brake fluid in the reservoir.
21. After starting the engine, check that alternator indicator light, oil pressure indicator light go off and remain on.
22. Check for abnormal engine noise and colour of exhaust smoke.

			<ul style="list-style-type: none"> 9. Shell SPIRAX EP 90 10. Gear ELF 90 EP 11. Motul HM-80W90 12. ESSO gear oil GX 85W90 13. EP 85W90 14. Transmission TM 80W90 15. Sunol Trans gear EP 90 16. Touring Gear EP 90
3.	Power steering	-	Oil steering Caltex Texamatic-1888
4.	Brake Fluid	SAE 1703 FMVSS 116 DOT 3 IS: 8654-1986	<ul style="list-style-type: none"> 1. IOC Servo brake fluid super HD (Crimson) 2. HP super duty brake fluid (DOT3) (Crimson) 3. Bharat heavy duty brake fluid (Crimson) 4. Castro (Indrol) Griling brake & clutch fluid (Crimson)
5.	Wheel hub Front chassis Greasing, Lubrication nipples Fan bearings, Water pump bearings	NLGI-No-2 IS 7623-1974 GRADE 2	<ul style="list-style-type: none"> 1. Castrol LCG2 2. IOC Servo grease MP 3. HP Multipurpose grease 2 4. MAK HM Univex A 5. Castrol all purpose grease 6. Gulfsil multipurpose grease No 2 7. Veedol AP grease NO 2
6.	Spring cables control point	IS 508-1973 GRADE 1	<ul style="list-style-type: none"> 1. HP Graphite grease 50 2. Petrosil Graphite grease 50 3. Bharat Garonex R 250
7.	Battery terminal Earting points wind shield wiper linkages	-	Petroleum jelly

RECOMMENDED OILS GREASES OPTIONAL LUBRICANTS

Ser No	Specification	Manufacture's Brand
1	API-SG/CC EC II	Servo superior XEE 10W/40
2	API-SH/CD EC II	Servo superior XEE SH 10W/40
3	API-SG/CD EC I	Servo superior XEE 15W/50
4	API-SH/CD	Mobile super XHP 20W 40
5	API-CF-4 SG	Mobile Delvac Super 1300 15W-40
6	API0SG/CD	Sheel Helix 15W/40
7	API-SH/CD EC II	Castrol GTX2 15W/40
8	API SG/CD EC II	Castro GTX extra 20W/50
9	API-SG/CD	Mistubishi Orbis Gran 20W/50
10	API-SH/CD	Esso Superflow XT 15W/40
11	API- SG/CD	Quartz 5000 15W/40
12	API-SG/CD	Quartz 4000 15W/40

COLLANT

1. Golden cruiser GC-1200 JISK 2234 Type II
2. Purocool
3. Castrol long life coolant
4. MAK HM Super cool

TECHNICAL DATADIMENSIONS

Engine	4ZBI four cylinder water cooled single overhead cylinder (SOHC) MPFI
Bore stroke	82 mm
Piston displacement	1817 cc
Maximum power (BHP)	75 @ 5000 rpm
Maximum Torque (Kg.m)	14.0 @ 3000 rpm
Compression Ratio	8.5 : 1
Valve clearance Intake	Cold- 0.15 mm, Hot-0.20 mm
Valve clearance Exhaust	Cold- 0.25 mm, Hot-0.30 mm
Firing order	1-3-4-2
Spark plug	W 16 EX-U-MICO W8 DCX
Spark plug Gap	1.0 to 1.01 mm
Fan belt deflection	8 to 12 mm
Cyl Head bolt tightening torque Kg.m (Nm)	9 to 11 Kgm (88 to 107 Nm)
Rear axle ratio	3.90 (10/39)
Gear Box	Standard 5 speed 1 reverse
First gear ratio	3.737 : 1
Second gear ratio	1.936 : 1
Third gear ratio	1.364 : 1
Fourth gear ratio	1.000 : 1
Fifth gear ratio	0.776 : 1
Reverse gear ratio	3.402 : 1
Clutch disc diameter	215 mm
Clutch pedal free travel	20 mm
Clutch release bearing free play	1.5 mm
Type of tyres	Radial 165 SR-15
Tyre pressure front	24 psi
Tyre pressure Rear	28 psi
Wheel base	2464 mm
Track front	1408 mm
Track Rear	1356 mm
Turning circle diameter	10.8 mtr
Overall length	4325 mm
Overall width	1662 mm
Overall height	1600 mm
Ground clearance	152 mm
Unladen weight	1104 Kg

Maximum permissible GVW (Gross veh weight)	1554 Kg
Maximum permissible FAW (Front Axle weight)	714 Kg
Maximum permissible RAW (Rear Axle weight)	840 Kg
Head light bulb	12 volt 60/55 watt
Side light	12 volt 5 watt
Front and rear flasher light	12 volt 21 watt
Tail stop light	5/21 watt
Illumination light	12 volt 6 watt (2 Nos)
Interior light	12 volt 5 watt
Ignition warning light	12 volt 2.2 watt
Head light main beam warning light	12 volt 2.2 watt
Oil warning light	12 volt 2.2 watt
Flasher warning light	12 volt 2.2 watt
Panel Speedo meter light	12 volt 2.2 watt
All gauges light	12 volt 1.2/2.2 watt
Engine compartment light	12 volt 21 watt
Hand brake warning light	12 volt 2.2 watt
Low brake fluid level warning light	12 volt 2.2 watt
Battery	12 volt 55 Amp
Fuses	15 Amp each
Capacity fuel tank	42 ltrs
Engine sump	4.5 ltrs
Gear box	1.6 ltrs
Rear axle	1.85 ltrs
Steering gear box	0.20 ltrs
Coolant	8.50 ltrs
Steering Gear box (power steering)	1.25 ltrs

MAINTENANCE SCHEDULE

S/No	Maintenance service operation	Kilometer ages in thousands																	
		1.2	3.2	5.2	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
	For AC System																		
1.	Check belt tension	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2.	Tighten compressor mounting bolt	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3.	Check all houses and pipe joints tighten if necessary	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4.	Clean condenser with high pressure water			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5.	Check belt for frayed edges, change if necessary			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6.	Check all mounting bolts			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	ENGINE AND CLUTCH																		
1.	Check Engine oil level & Top up if necessary					x	x	x	x	x	x	x	x	x	x	x	x	x	x
2.	Engine oil replace (API GRADE-Every 5000 Kms & API Grade SF/CC, SG/CD, SH/CD CF-4/SG change every 10,000 Kms) Provide subsequent topping up is done with same grade oil	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3.	Engine oil filter replace	x			x		x		x		x		x		x		x		x
4.	Air cleaner element inspect for damage & distortion			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5.	Air cleaner element replace									x									x
6.	Oil leakage& contamination inspect			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7.	Cylinder head bolt torque check	x	x	x							x						x		
8.	Valve clearance adjust	x	x	x			x				x				x				x
9.	Compression pressure-inspect						x				x				x				x

ITEMS	INTERVAL	CONDITION				
		REPEATED SHORT TRIP	DRIVING ON ROUGH ROADS	DRIVING ON DUSTY ROADS	DRIVING IN EXTERMELY COLD WEATHER AND SALTED ROADS	DRIVING IN EXTERMELY COLD WEATHER AND SALTED ROADS AND REPEATED SHORT TRIP
Engine Oil	Change every 2500 kms			X		X
Engine Oil filter	Replace every 5000 kms			X		X
Exhaust pipe and mounting	Inspect every 10000 Kms	X	X		X	
Steering system for looseness or damage	Inspect every 5000 Kms		X			
Check universal joints and sleeve for wear	Inspect every 10000 Kms		X			
Transmission oil	Change every 20000 Kms		X			
Rear brake lining and drum	Inspect every 10000 Kms		X	X		
Brake pad and disc	Inspect every 10000 Kms		X	X		

