

Star 4



MANUALE DI USO E MANUTENZIONE OWNER'S MANUAL MANUEL DE MODE D'EMPLOI ET D'ENTRETIEN MANUAL DE USO Y MANTENIMIENTO



- CONOSCETE LA VOSTRA STAR DELUXE 4T
- COME AZIONARE LA VOSTRA STAR DELUXE 4T
- CURA E MANTENIMENTO DELLA VOSTRA STAR DELUXE 4T



- KNOW YOUR STAR DELUXE 4S
- HOW TO OPERATE YOUR STAR DELUXE 4S
- CARE AND MAINTENANCE OF YOUR STAR DELUXE 4S



- POUR CONNAITRE VOTRE STAR DELUXE 4T
- POUR ACTIONNER VOTRE STAR DELUXE 4T
- SOIN ET ENTRETIEN DE VOTRE STAR DELUXE 4T



- CONOCER VUESTRA STAR DELUXE 4T
- CÓMO ACCIONAR VUESTRA STAR DELUXE 4T
- CUIDADO Y MANTENIMIENTO DE VUESTRA STAR DELUXE 4T

Star 4



OWNER'S MANUAL

• **KNOW YOUR STAR DELUXE 4S**

• **HOW TO OPERATE YOUR STAR DELUXE 4S**

• **CARE AND MAINTENANCE OF YOUR STAR DELUXE 4S**

IMPORTANT INFORMATION

1. Name:

Address:

.....

.....

Licence No.:

2. **YOUR DEALER.**

Name:

Address:

.....

.....

.....

Tel. No.:

3. **YOUR VEHICLE**

Model LML: STAR DELUXE 4 STROKE

Colour:

Engine No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Chassis No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Key No.:

Date of purchase:

Date of Registration:

Registration No.:

Thank you for having chosen the STAR 4 Stroke as your new scooter.

The STAR scooter is manufactured by LML Limited – one of the motorcycle manufacturing company in rapid expansion in India. A company that endeavours to redefine mobility everyday, the worldover by exceeding customer expectations.

After years of studying the customer's needs, the company finally created the STAR 4 Stroke that promises an incomparable ride.

It is equipped with a powerful 125/150cc four stroke engine that unleashes a phenomenal power.

Apart from offering an excellent performance and a comfortable ride, the Star will make everybody envious thanks to its breathtaking design and its original colours that nobody can ignore.

This owner's manual has been specially designed to help you understand your scooter better. It is important to read this manual to obtain the best performance from your Star. It will also help you to maintain it in the best condition.

After reading this manual climb on board your new Star and discover international class mobility.

CONTENTS

DESCRIPTION	PAGE NO.	DESCRIPTION	PAGE NO.
How to obtain the maximum performance from your LML STAR 4 Stroke scooter	3	Operating the vehicle	26
Vehicle Identification	6	Running-in Instructions	29
Parts & Specifications	7	Care and Maintenance	30
General specifications	9	Cowls	30
Specifications - Auto start	13	Changing the tyres	31
Auto start Circuit Diagram	14	Engine oil	33
Technical Specifications	16	Spark plug cleaning	34
Control Functions	18	Battery	34
Locking System	18	Air Cleaner	37
Switches	21	Cleaning & Polishing	38
Clutch	22	Maintenance while not in use	38
Gear	23	Recommended Lubricants	39
Brakes	24	Maintenance by	
Fuel supply	24	LML authorised Technical Assistance Centre	40
		Exhaust Emission Control	45
		Wiring Circuit Diagram	46

HOW TO OBTAIN THE BEST PERFORMANCE FROM YOUR STAR 4 STROKE

Given below are some important features of your scooter and some useful tips on how to maximize the benefits it offers.

1. **LML's fuel saver engine:** This engine gives the best fuel consumption at a driving speed of 35-45 kms/hr after running-in of 1000 kms.

The distance in kilometres can therefore vary on the basis of the road conditions, the intensity of traffic and driving habits and conditions, as well as the respect for the periodical maintenance intervals.

Tips to stretch each litre of petrol even longer.

- 1.1 Change gears as per the required speed. Try to maintain the speed of 35-45 kms/hr to give you the best mileage.
- 1.2 Use clutch, brakes and full throttle only as and when required.
- 1.3 Maintain the air pressure in the front tyre at 1.4 bar and 1.6 bar in the rear tyre with only the driver on board or 2.0 bar with passenger.

2. Safety devices of the STAR 4 STROKE:

The safety features inbuilt in your scooter take away the worries from your driving. It is a perfectly balanced scooter and its state of the art braking system enables you to come to an instant halt without skidding regardless of the speed at which you are driving.

A powerful DC horn and indicators with a buzzer enable you to negotiate busy and noisy traffic conditions. In addition, the head light retains its intensity even at low speed that makes for safer night driving.

Some tips for even safer driving.

- 2.1. Always use a helmet while driving.
- 2.2. Make yourself familiar with the driving signs and regulations.
- 2.3. Drive at a speed at which you are in complete control of the scooter.
- 2.4. Never drive in neutral gear especially when going down-hill or on a wet or slippery road.
- 2.5. Use horn and indicators whenever required.

3. **The sensation of engine power of the STAR 4 STROKE:** The engine power of your scooter is not only the highest among all scooters but also compares to some of the most popular motorbikes in the same cubic capacity. You can now surge ahead of other vehicles, either from a stop position or while negotiating busy traffic.

Some tips on how to keep power under control

- 3.1. Accelerate only to the extent you are in complete control of the scooter.
- 3.2. Use its maximum power only when you need to.

4. **An enjoyable ride that only the STAR 4 STROKE knows how to give:** Your scooter has been designed so as to enable you to sit in a correct posture to avoid strain. Its comfortable and long seat, double acting suspension and strong shock absorbers better withstand uneven road conditions to give you driving pleasure, unmatched by any scooter.

Some tips on how to enhance your driving pleasure.

- 4.1. Maintain the correct posture.
- 4.2. Sit in a relaxed and natural manner, not stiffly.
- 4.3. Reduce speed on uneven and bumpy roads.

VEHICLE IDENTIFICATION

The vehicle is identified by a number on the chassis and another number on the engine.

The chassis identification number is stamped inside the glove compartment on upper chassis as shown in (Fig. 1).

The engine number is stamped on the crank case (Fig. 2).

Every STAR 4 STROKE has a spare set of keys. An identification number is punched on metallic tag, which is provided alongwith the key ring (Fig. 3).

Please keep your duplicate key carefully along with the metallic tag.

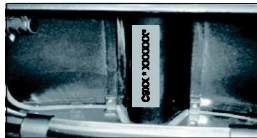


Fig. 1

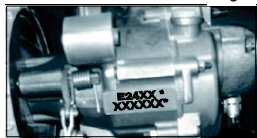
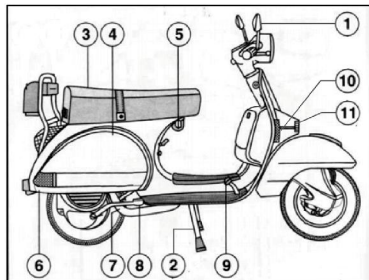


Fig. 2

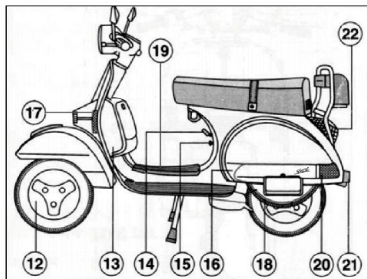


Fig. 3

Parts & Specifications



- | | |
|-------------------------------------|---|
| 1. Rearview mirror | 7. Silencer |
| 2. Central stand | 8. Kick starter |
| 3. Seat | 9. Rear brake pedal |
| 4. RH side cowl | 10. Front direction indicator
(right side) |
| 5. Hook for bag | 11. Horn |
| 6. Rear turn indicator
(RH side) | 12. 5 spoke wheel hub |



- | | |
|--|--------------------------------------|
| 13. Glove compartment | 19. Driver's foot platform |
| 14. Fuel cock lever | 20. Rear turn indicator
(LH side) |
| 15. Choke control knob | 21. Rear mudguard |
| 16. LH side cowl | 22. Tail light |
| 17. Front direction indicator
(left side) | |
| 18. Spare wheel | |

Parts & Specifications

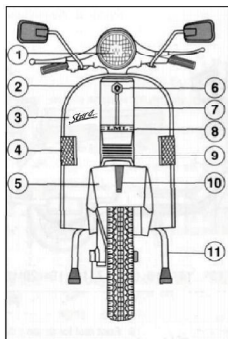


Fig. 6

1. Head light
2. Fairing edge trimming
3. STAR nameplate
4. Front turn indicator
5. Front mudguard
6. LML symbol
7. Fork cover

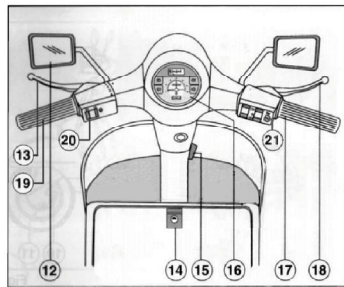


Fig. 7

- | | |
|--|---|
| <ol style="list-style-type: none"> 8. LML nameplate 9. Grill 10. Crest 11. Central stand 12. Rear view mirror 13. Clutch lever 14. Glove compartment lock | <ol style="list-style-type: none"> 15. Ignition-cum-steering lock 16. Instrument panel 17. Accelerator twistgrip 18. Front brake lever 19. Gearchange twistgrip 20. Indicator switch 21. Light switch – starter and horn buttons |
|--|---|

GENERAL SPECIFICATIONS

1. ENGINE

- 1.1 **Engine:** 4 stroke, horizontal single cylinder
- 1.2 **Ignition:** Via an electronic starter device (CDI) that feeds the live HT coil that generates the spark.
- 1.3 **Lubrication:** Wet sump forced pressure splash through a pump.
- 1.4 **Clutch:** Multiplate, oil bath type. The unit is cable operated by a lever located on the left hand side of the handlebar and is adjustable.
- 1.5 **Gear Box:** Four speed forward drive with constant mesh gears immersed in oil bath are operated by the twist grip on the left hand side of the handlebar which functions in conjunction with the clutch control lever.
- 1.6 **Cooling:** Forced air provided by a centrifugal fan.
- 1.7 **Mechanical starter:** With kick starter pedal located on the right hand side of scooter. Push button only in auto start model.
- 1.8 **Electric starter:** Pull in the clutch lever and press the **starter button**.

2. FUEL

- 2.1 **Fuel supply:** Gravity fed from fuel tank to carburettor. Carburettor is a side draft carburettor and is having a vertical moving throttle slide.
- 2.2 **Fuel Gauge:** In built with the speedometer indicates the quantity of petrol in the petrol tank by virtue of a float unit located inside the tank.
- 2.3 **Throttle Control:** Accelerator controlled by the twistgrip on the right side of the handlebars.

3. CHASSIS

- 3.1 **Chassis:** Pressed steel sheet and strong tubular structure. A pressed steel sheet shell covers the tubular structure.
- 3.2 **Handlebar:** Light alloy casting with headlamp, instrument panel and indicator lights. All transmission cables are concealed therein.
- 3.3 **Steering column and suspension:** The steering column is pivoted on the front wheel swinging hub. Front and rear suspensions are provided with helical spring & hydraulic dampers.
- 3.4 **Rear view mirror:** Stylish moulded rear view mirrors on both sides of handlebar.
- 3.5 **Security Lock:** On the steering column and operated by a key.
- 3.6 **Glove Compartment:** A sleek & spacious glove compartment for keeping personal belongings, secured with a lock.
- 3.7 **Seat:** Tip-up seat with a safety lock.

4. WHEELS

- 4.1 **Wheels:** Interchangeable and manufactured from pressed sheet steel with 3.50 x 10 tyres.
- 4.2 **Rear brake:** drum brake with expanding brake-shoes activated by a foot pedal on the right side of the foot platform.
- 4.3 **Front brake:** disc brake activated by a manual lever positioned on the right side of the handlebars.

5. TOOL KIT

- Tool kit in a pouch containing**
Box Spanner with lever
Double sided screw driver
2 Double ended spanners

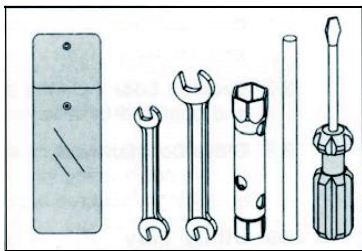


Fig. 8

6. **ENGINE OIL:** Quantity of Engine oil in the crank case is 850 ml. This is for lubrication and cooling of the Engine. Always maintain Oil level as per the marks provided on the level gauge / dipstick as shown in the figure for details of checking see page no. 33.

Note: *Take care that Engine Oil level is always maintained between the upper and lower level mark on the oil level gauge / dipstick. Running engine with insufficient oil may cause serious engine damage.*

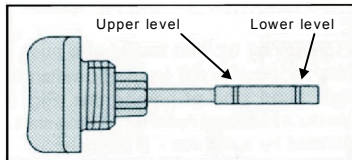


Fig. 9

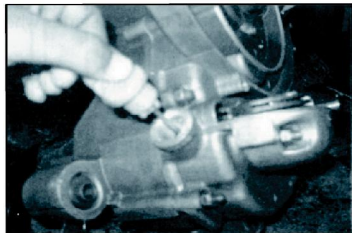


Fig. 10

SPECIFICATIONS - AUTO START

The **STAR 4 STROKE** has an automatic starter operated by a button underneath the light switch on the right of the handlebars (Fig. 11) as well as an optional method of kick starting the engine by using the kickstart pedal. The auto start circuit is operated by a 12 volt - 9 Ah battery.

A **PRD relay** (prevention of restarting device) is provided to avoid use of the self starter when the engine is running.

A **declutch switch** has been provided to prevent starting of scooter when the clutch is engaged.

An **8 Amp fuse** (on spare wheel bracket, Fig. 12 & 13) is provided to avoid any damage due to short circuiting in auto start system.

A powerful **12 volt-96 watt magneto** charges the battery through a regulator with a built in charger.

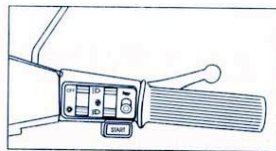


Fig. 11

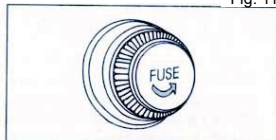


Fig. 12

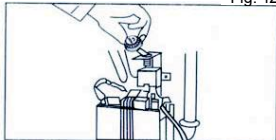
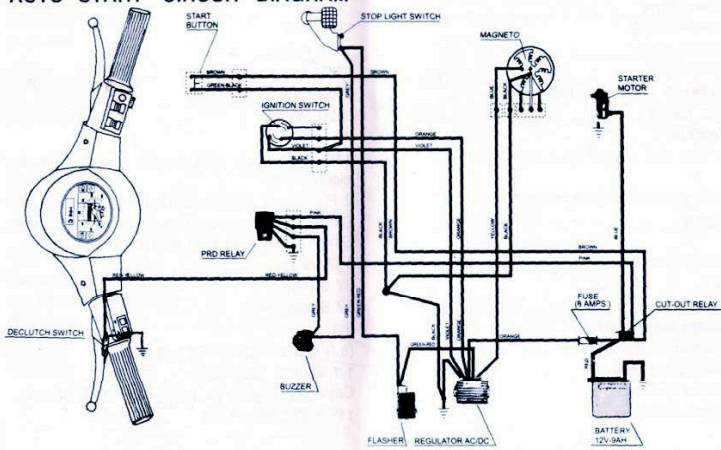


Fig. 13

'AUTO START' CIRCUIT DIAGRAM



TECHNICAL SPECIFICATIONS

Engine	Horizontal single cylinder four stroke, single over-head camshaft with two valves, cooled by forced air
Displacement	125 cc / 150 cc
Bore x stroke	52.4 x 57.8 mm / 57.42 x 57.8 mm
Compression ratio	9 ± 0.5 : 1
Maximum power	5.84 ± 0.25 kW at 6,000 rpm ± 200 rpm / 6.75 ± 0.25 kW at 6,250 rpm ± 200 rpm
Maximum torque	9.15 Nm at 5,000 rpm / 11.54 Nm at 3,500 rpm
Fuel feed system	KEHIN PB Ø 18 carburettor
Fuel	95 octane petrol
Fuel tap	three-way: Open (ON) Closed (OFF) Reserve (RES)
Spark plug	RG4HC (Champion) C8EH9 (NGK) UHR3CC (Bosch)
Clutch	Multiplate oilbath type
Starter	Electronic (CDI)
Starter	Electric with kick start pedal
Gearchange	Manual, 4 speed gearbox with pinion always engaged

Technical Specifications

Lubrication	Wet sump
Silencer	Catalysed with secondary air injection system
Dimensions (L x W x H)	1,760 x 695 x 1,110 mm
Seat height	820 mm
Wheel base	1,235 mm
Fuel tank capacity	5.5 litres including 1 litre reserve
Front suspension	Swing arm, hydraulic double-effect shock absorber with helical spring
Rear suspension	Engine crankcase functions partly as a swing arm and hydraulic double-effect shock absorber with helical spring
Front/rear wheels	Assembled pressed sheet steel unit
Front/rear tyres	3.50-10
Front brake	Disc brake in stainless steel Ø 200 mm
Rear brake	Drum brake Ø 150 mm
Frame	Pressed sheet steel with rear tubular framed structure covered by a sheet steel shell assembly.
Weight	121 kgs
Maximum load capacity	275 kgs (2 persons with 10 kgs of luggage)
Controls	
Steering	Handle bar
Accelerator	Twist grip type on right hand side of the handle bar.
Gears	By hand on left hand side of the handle bar.
Clutch	Lever operated on left hand side of the handle bar.
Front brake	Lever operated by right hand.

Technical Specifications

Rear brake

Pedal operated by right foot.

Electricals

Generator system

12 Volt 96 Watt.

Head lamp

12 Volt 35/35 Watt.

Tail light bulb

12 Volt 5 Watt.

Stop light bulb

12 Volt 10 Watt.

Speedolight bulb

12 Volt 1.2 Watt x 2.

Turn signal light bulb

12 Volt 10 Watt.

Tell tale lamp

12 Volt 1.2 Watt x 4.

Horn

12 Volt DC Horn fitted with AC to DC convertor

Battery

12 Volt 9 Ah.

Fuse

8 Amp

CONTROL FUNCTIONS

1. LOCKING SYSTEM

The STAR 4 STROKE has a single key to block the steering, lock the glovebox and the seat as well as start the ignition.

1.1 Steering lock-cum ignition switch.

Locking the Handlebar: First turn the handlebar to the extreme left and then turn the key anti-clockwise to lock position. Pull out the key after locking (Fig. 14).

Un-locking the Handlebar: Insert the key in ignition switch and turn it clockwise to unlock the handlebar. To switch on the ignition turn the key further clockwise to "ON" position (Fig. 15).

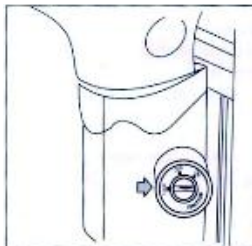


Fig. 14



Fig. 15

1.2 **Glove compartment lock:** To open the lock, insert the key into the lock and rotate anti-clockwise till the end and then press the lock downwards. For closing, press the lid, turn the key clockwise and then take out the key (Fig. 16 & 17).

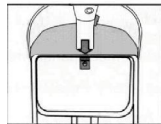


Fig. 16



Fig. 17

1.3 **Seat Lock (Dual Seat):** Insert the key, rotate it clockwise till the end then take it out. Push the lock with thumb (Fig. 18) and lift the saddle from the back (Fig. 19). Place the saddle in its normal position & press it down. To lock the saddle, follow the above procedure in reverse order.

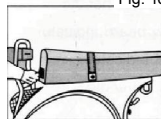


Fig. 18

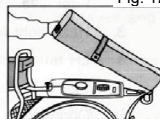


Fig. 19

INSTRUMENT PANEL

An elegantly designed instrument panel which contains the following:

1. Fuel-Gauge
2. Fuel level indicator needle
3. Head light low beam indicator
4. LH turn signal indicator
5. Speed indicator needle
6. Odometer
7. RH Turn signal indicator
8. Head light high beam indicator

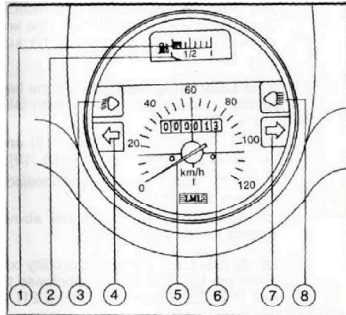


Fig. 20

2. **CONTROL SWITCHES:** Control switches are located on the right and left hand sides of the handlebar.

2.1 **Right hand side of the handlebar (Fig. 21).**

2.1.1 **Headlight**

- | Press bottom end of (1) to activate the headlight.
- | Press top end of (2) for high beam or bottom end of (2) for low beam.
- | Headlight is switched off if (1) is pressed at top end.

High and low beam positions are indicated on the instrument panel.

- 2.1.2 **Instrument Panel lights and tail lights.** Press bottom end of (1) for light. Press top end of (1) to switch off light.

- 2.1.3 **Stop Light** – Becomes operative when foot brake pedal or hand brake lever is pressed.

- 2.1.4 **Horn** – Press button (3)

- 2.1.5 Press the starter button (4) to electrically start the engine but only after having pulled in the clutch lever first.

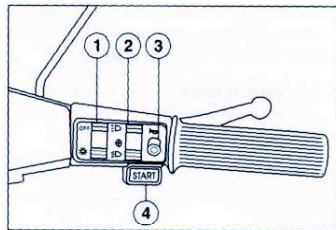


Fig. 21

2.2 **Left hand side of the handlebar (Fig. 22).**

- 2.2.1 **Turn indicator switch:** Press left hand end of switch for turning left and right hand end for turning right.

Left & right turn indicators are shown on the instrument panel.

3. **CLUTCH AND GEARCHANGE CONTROLS:**

Located on the left hand side of the handlebar, consisting of clutch lever for engaging the clutch and the gear twist for changing gears.

- 3.1 **Clutch lever:** Press the clutch lever towards the handlebar to disengage the clutch. (Fig. 23).

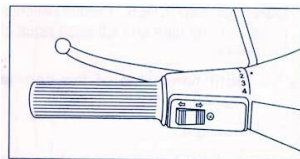


Fig. 22

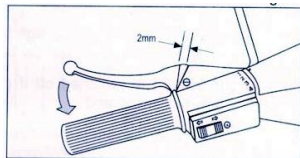


Fig. 23

- 3.2 **Twist grip for gear change:** There are 5 positions, one for neutral and the other four for driving at different speeds as given below;

<i>Gear position</i>	<i>Speed band as given below</i>
1	Upto 10 Kms/hour
0	Neutral
2	10-20 kms/hour
3	20-35 kms/hour
4	35 kms/hour & above

To change gear, press clutch lever and turn the twist grip. (Fig. 24) to the required position.

4. **ACCELERATOR CONTROL:** Located on the right hand side of the handlebar. It is a twist grip. For increasing acceleration rotate the twist grip towards yourself. Do the reverse for decreasing acceleration (Fig. 25).

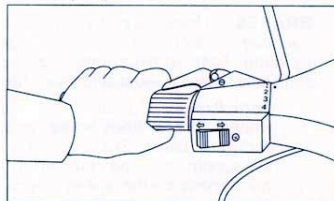


Fig. 24

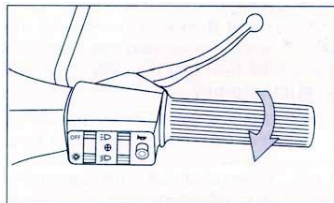


Fig. 25

5. **BRAKES:** There are two brakes one operated by foot and the other operated by hand. Both brakes should be applied simultaneously for most effective braking.

5.1 **Foot Brake:** Operates on the rear wheel. Press down brake pedal to apply the brake. The distance in which the scooter can be brought to a halt will depend on the speed at which the vehicle is travelling and the user's driving habits. (Fig. 26).

5.2 **Hand Brake:** Operates on the front wheel. Press hand brake lever towards the twist grip (Fig. 27).

6. FUEL SUPPLY

6.1 The fuel tank is located under the seat (Fig. 28) and is accessible only when the seat is unlocked and lifted. For filling in petrol unscrew the cap and close it after refuelling.

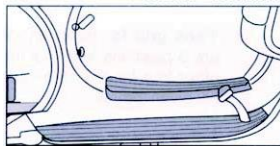


Fig. 26

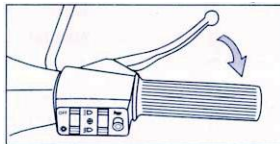


Fig. 27

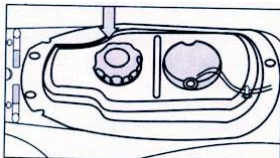


Fig. 28

- 6.2 **Control of flow of petrol (Fig. 29):** There is a fuel tap under the seat that has three positions: (ON) for a regular flow of fuel, (OFF) to stop the flow of fuel from the tank to the engine and (RES) that must be activated when on reserve.

If the vehicle stops on account of lack of petrol, then turn the cock lever to (RES) i.e. "RESERVE" position. There is one litre of petrol kept in reserve in your tank for any emergency.

There is a fuel gauge in the instrument panel for indicating the quantity of fuel in the tank.

- 6.3 **Choke control knob (Fig. 30):** Located below the fuel cock. To be used for starting the engine when it is cold. Pull the choke knob out-wards for operation. Pull out the choke control knob to operate it. It must be pushed back in when the engine has warmed up.

Caution: *If the choke control knob is pulled out and remains out, this would cause an excessive level of fuel in the carburettor that would cause irregular running and elevated fuel consumption.*

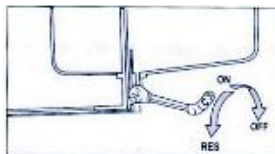


Fig. 29

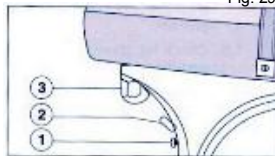


Fig. 30

1. Choke control knob, 2. Fuel Cock lever,
 3. Hook for Bag
7. **HOOK FOR BAG:** There is a hook for hanging a bag under the seat.

OPERATING THE VEHICLE

Warning: Before driving your scooter make yourself thoroughly familiar with all operating controls and their functions.

1. BEFORE STARTING THE ENGINE:

- 1.1 Check if tyres are properly inflated.
- 1.2 Check for correct play in the clutch lever (Fig. 23) and make sure that it operates properly.
- 1.3 Check that the brake pedal play is correctly adjusted.
- 1.4 Check that the accelerator control functions correctly and the play is within normal limits.

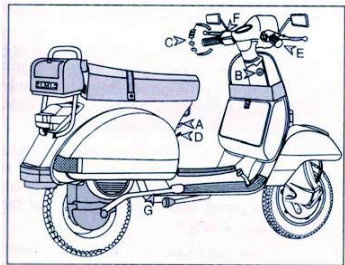


Fig. 31

- A- Open fuel cock
- B- Switch 'ON' ignition
- C- Put gear in neutral position
- D- Pull out the choke control knob (only when the engine is cold)
- E- Position the accelerator control at minimum.
- F- De-clutch
- G- Kick starter pedal

2. **STARTING THE ENGINE (Fig. 31).**

- 2.1 Turn fuel cock lever to "ON" position.
- 2.2 Turn 'ON' the ignition switch.
- 2.3 Put gear control in neutral position.
- 2.4 Pull out the the choke control knob only when the engine is cold.
- 2.5 Bring the throttle to idling position.
- 2.6 If you are starting the engine for the first time in the day, press the clutch lever and, keeping it pressed, kick the starter lever a couple of times.
- 2.7 Operate the kick pedal by pushing it down with a kick for starting the engine. To start the engine using the electric starter, press the clutch lever and then press the starter button.
- 2.8 When the engine is running normally, press the choke knob back to its normal position.

Caution:

- i. *Do not use electric starter for more than 5 seconds at a time. Release the push button start switch for approximately ten seconds before pressing it again. If the engine fails to start after repeated attempts hold the throttle 1/8-1/4 open and push the button start switch.*
- ii. ***Before using the electric starter button, ensure that the clutch lever has been pressed.***

3. **DRIVING THE SCOOTER:**

- 3.1 Remove the vehicle from stand, by pushing it forward.
- 3.2 Seat yourself on the scooter with feet on the ground and hands on the handle bar.
- 3.3 With the engine running at idling speed, press the clutch lever with the left hand and rotate the gear twist grip to 1st gear position.
- 3.4 Put the scooter in movement by gradually releasing the clutch and simultaneously turning the accelerator twistgrip.

- 3.5 To change gear, rotate the accelerator twistgrip back to zero, press the clutch lever and turn the gearchange twistgrip control and position it on the next upper or lower gear.
 - 3.6 Use indicator switch button for turning and use horn whenever required.
- 4. **APPLICATION OF BRAKES:**
 - 4.1 Turn the accelerator twistgrip back to zero.
 - 4.2 Press the clutch lever and change the gear to the neutral position.
 - 4.3 Use foot pedal brake and hand brake simultaneously for the most efficient braking.

ENGINE RUNNING-IN

Operation: The most important period in the life of your scooter is its first 1000 kms. The engine is brand new and different moving parts of the engine need to be set to their correct operating tolerances. This ensures a longer life for your vehicle. It is therefore necessary to take some precautions so as not to overload the engine.

1. Keep to the following speed limits
 - 1st Gear: 0 to 10 kms/hr.
 - 2nd Gear: 10 to 20 kms/hr.
 - 3rd Gear: 20 to 35 kms/hr.
 - 4th Gear: 35 kms/hr and above.
2. Avoid running the scooter on full accelerator (throttle) for long periods. Vary the speed from time to time.
3. Do not drive with half (partially engaged) clutch. This will not only damage the clutch but will also cause overheating of the engine.
4. Allow a cooling off period of 5-10 minutes after each hour of use.
5. Ensure oil level in engine to recommended level, by checking the level with the help of dipstick.

CARE AND MAINTENANCE

1. REMOVAL AND REFITTING OF COWLS:

The right hand side cowl is to be removed for checking of oil level and spark plug. The left hand side cowl is to be removed for taking out or refitting the spare wheel.

The levers for opening the cowls are placed under the seat. To remove the cowls:

- 1.1 Lift the seat as explained on page 19.
- 1.2 Turn the cowl opening levers outwards (Fig. 32).
- 1.3 Hold the body fairing with both hands and remove the cover in an upwards and backwards movement and remove it (Fig. 33 & 34).
- 1.4 Pull out the cowl by disengaging its rear end. (Fig. 35).
- 1.5 Refit the cowl, by following above procedure in reverse.



Fig. 32



Fig. 33



Fig. 34

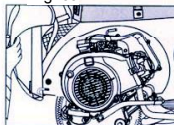


Fig. 35

2. CHANGING THE TYRES :

- 2.1 **Removing and refixing the spare-wheel**
 - 2.1.1 Remove the left hand side cowl as mentioned above.
 - 2.1.2 The wheel is fixed by three nuts. Unscrew the nuts using the box spanner from the tool kit, remove the three elastic washers and remove the wheel (Fig.36).
 - 2.1.3 For fixing the spare wheel follow the above procedure in reverse order.

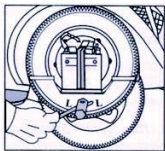


Fig. 36

2.2 Changing of Front Wheel

- 2.2.1 Put the vehicle on its central stand.
- 2.2.2 Remove the five nuts that fix the wheel to the wheel hub using the box spanner from the tool kit (Fig. 37). While loosening the nuts, hold the wheel with one hand.
- 2.2.3 Remove the spring washers and take out the wheel from the brake drum.
- 2.2.4 For refitting, follow the above procedure in reverse order.

2.3 Changing of Rear Wheel :

- 2.3.1 Put the vehicle on its central stand.
- 2.3.2 Remove side cowls as explained on page 30.
- 2.3.3 Remove the battery. Follow the instructions given on page 35 for removal and installation of battery.

- 2.3.4 Bring the fuel knob to "close" position. Start the engine to exhaust petrol in the carburettor as well as in the fuel line. The engine will stop automatically when the fuel is exhausted.
- 2.3.5 Remove the spare wheel as explained on page 31.

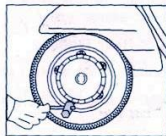


Fig. 37

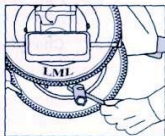


Fig. 38

- 2.3.6 Lay the scooter gently on ground on its right hand side with the handle bar sleeve touching the ground at right angle.
- 2.3.7 Bring the vehicle in first gear and hold the wheel with one hand. Remove the five nuts securing the wheel to the brake drum by using the box spanner (Fig. 38).
- 2.3.8 Remove the spring washers and take out the wheel from the brake drum.
- 2.3.9 For refitting, follow the above procedure in reverse order.

Precaution:

1. *Tighten all wheel securing nuts alternately and progressively. Re-check if all nuts are tightened properly.*
2. *Get the tyre pressure checked to the recommended level at the nearest service station.*

2.4 Tyre Rotation:

All three wheels of the STAR 4 STROKE are interchangeable. However, the air pressure in the tyre will depend on whether it is fitted in the front or rear position. To ensure even tyre tread wear, it is necessary to rotate the tyres and change the face of the tyre (in relation to the wheel rim) after every 6000 kms. Follow the sequence for tyre rotation as explained in fig. 39.

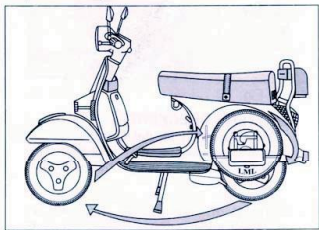


Fig. 39

3 CHECKING ENGINE OIL LEVEL AND CLEANING SPARK PLUG

- 3.1 Park the vehicle on level surface.
 - 3.1.1 Remove the right hand side cowl as directed on page 30.
- 3.2 **Checking oil level:**
 - 3.2.1 For checking the oil level, unscrew dipstick as shown in fig. 40.
 - 3.2.2 Clean dipstick by a dry cloth.
 - 3.2.3 Immerse the oil level rod without screwing it in.

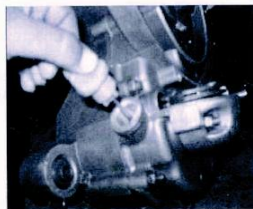


Fig. 40

- 3.2.4 Take out dip stick and check the level of oil, as shown in fig. 9. Oil level should be above lower level make and below upper level mark.
- 3.2.5 If level is less add Engine Oil to maintain correct level.
- 3.2.6 Refix the dipstick.
- 3.2.7 Wipe off any excess oil which may have been spilled.
- 3.2.8 Refit the cowl.
- 3.3 **Spark plug cleaning:**
- 3.3.1 Remove the right hand cowl.
- 3.3.2 Disconnect the HT lead cable (Fig. 42).
- 3.3.3 Wipe & clean the area around the spark plug.
- 3.3.4 Using the box spanner, unscrew the spark plug (Fig. 43).
- 3.3.5 Clean out any excessive carbon deposit.
- 3.3.6 Refix the spark plug back to its position.
- 3.3.7 Refit the cowl.

If you have a feeler gauge you can check the gap between the electrodes in the spark plug. This gap should be 0.7-0.8 mm (fig. 41). To adjust the gap again, it is better to go to an authorised LML assistance centre.



Fig. 41

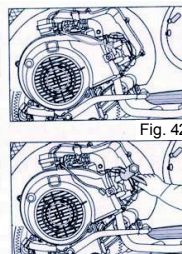


Fig. 42

Fig. 43

4. BATTERY CHECKING

Battery requires regular and thorough maintenance as advised below:

- 4.1.1 The level of electrolyte must always be in between the upper and lower levels marked on the battery. Normally a constant level in the specified range is maintained for about two months or approximately 2000 kms (Fig. 44).

- 4.1.2 The level of electrolyte should be checked once in a month. In case of a normal decrease (0,5 cm) put in distilled water only so as to reach the upper level indicated on the battery. If there is a marked drop in the electrolyte level (1 cm or more) have the battery checked at an authorised LML assistance centre.

Caution:

1. *Battery should be removed if the vehicle is to be washed lying on its side.*
2. *Use only 8 Amp fuse to prevent serious damage to the wiring harness & battery. Ignition switch should be in "off" position while replacing fus*

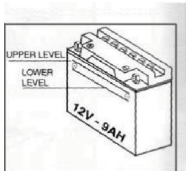


Fig. 44

4.2 Removal and refitting the battery

- 4.2.1 Turn the ignition key to "off" position.
- 4.2.2 Remove the left hand side cowl as explained on page 30.
- 4.2.3 Remove the screw securing ground cable (black) connected to the negative (-) battery terminal by using the end of the screw driver from your tool kit. (Fig. 45)
- 4.2.4 Similarly follow the procedure for removing the red cable connected to the positive (+) battery terminal.
- 4.2.5 Remove the battery and the acid discharge tube.
- 4.2.6 Detach the fastener belt and take out the battery.

Precaution:

Keep the battery and bleeder tube away from the vehicle to avoid any damage to the painted surface of the scooter due to leakage or spillage of battery electrolyte.

4.3 Installation:

- 4.3.1 Clean the battery box.

- 4.3.2 Clean the battery thoroughly from the outside.
- 4.3.3 Put the battery in the battery box.
- 4.3.4 Connect the fastener belt first to the lower hook, then hold the battery firmly with one hand, stretch the belt and fasten it in the upper hook. Re-check if the battery is fastened firmly (Fig. 46).
- 4.3.5 Re-fix battery bleeder tube and ensure that it is routed properly through its clamp.
- 4.3.6 Fix the "Positive" (+) terminal first and then the "Negative" (-) terminal.
- 4.3.7 Make sure the battery cable does not touch any metallic surface during fitment.

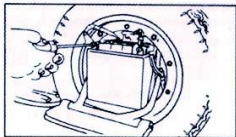


Fig. 45

- 4.3.8 Apply grease around the terminals to prevent corrosion.
- 4.3.9 Ensure, Protection cap provided on battery harness is fixed properly on positive (+) terminal of battery.

Caution:

Always ensure that the bleeder tube is not clogged, crimped or bent. The tube must be of an adequate length. Replace the bleeder tube in case it is not of correct length or it is clogged, or bent.

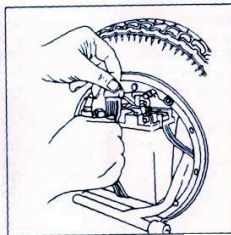


Fig. 46

4.4 Storage of battery while not in use

- 4.4.1 Keep the battery fully charged.
- 4.4.2 Maintain electrolyte level at MAX./ "UPPER LEVEL."
- 4.4.3 Take battery out of the vehicle and store it in a dry, cool place and at a constant temperature.
- 4.4.4 Keep battery away from rain, dew, high moisture and direct sunlight.
- 4.4.5 The battery should be charged once a month when the vehicle is not in use.
 - For initial charging, the battery must be charged at least for 7 hours.
 - Always go to the authorised LML assistance centre for battery maintenance and charging the battery.

5. AIR CLEANER Air cleaner is fitted below the fuel tank and requires cleaning during each periodical service and more frequently when riding in dusty area's.

6. CLEANING & POLISHING:

Frequent and thorough cleaning of your scooter will further enhance its appearance and extend its life.

- 6.1 The scooter should be cleaned at ambient temperature i.e., not immediately after use or in hot sun.
- 6.2 Use a low pressure water hose for cleaning the vehicle.
- 6.3 Wipe it, clean and dry with soft cloth.
- 6.4 Do not use detergents or powders which are likely to leave scratches on the surface.
- 6.5 For polishing, use normal car polish and rub with soft cloth.

7. CARE OF YOUR VEHICLE WHEN NOT IN USE FOR LONG PERIODS

If you are not going to use your vehicle for more than two months then you should store it properly as per the following advices.




- 7.1 With the help of a pipe, syphon out the petrol from the fuel tank.
- 7.2 Start the engine for some time and exhaust the petrol in the carburettor.
- 7.3 Remove the spark plug as explained on page 34 and put a few drops of Engine Oil in the spark plug hole. Press the kick lever a couple of times. Refix the spark plug.
- 7.4 Clean the vehicle thoroughly and apply antirust grease on all unpainted metallic parts.
- 7.5 Raise the wheels off the ground by placing wooden planks and deflate the tyres so that they do not touch the floor.
- 7.6 Cover the scooter.



LML ITALIA raccomanda l'uso di lubrificanti e additivi BARDHAL.
 LML ITALIA recommend to use lubricants and additives BARDHAL.
 LML ITALIA recommande d'utiliser lubrifiants et additifs BARDHAL.
 LML ITALIA empfehlen schmier und zusatzstoffe BARDHAL.
 LML ITALIA recomendamos utilizar lubricantes y aditivos BARDHAL.



TABELLA LUBRIFICANTI - TABLE OF LUBRICANTS - TABLEAU DES LUBRIFIANTS - SCHMIERMITTELABELLE - TABLA LUBRICANTES

APPLICAZIONI APPLICATIONS APPLICATIONS ANWENDUNGEN USOS	CONSIGLIATO RECOMMENDES RECOMMANDE EMPFOHLEN RECOMENDADO	
OLIO MOTORE MOTOR OIL HUILE MOTEUR MOTORÖL ACEITE MOTOR	XTM SYNT 10W-40	
LIQUIDO FRENI BRAKE FLUIDS CIRCUIT FREIDS BREMSBEDIENUNG SISTEMA DE MANDO FRENOS	BRAKE FLUID DOT 4	

Recommended quantity of oil to be filled in Engine is 850 ml.

PERIODICAL MAINTENANCE TO BE CARRIED OUT BY AN AUTHORISED LML ASSISTANCE CENTRE

Preventive Maintenance:

To obtain the best performance from your STAR 4 STROKE it is important to carry out periodical maintenance on your vehicle. The following table gives the suggested action for different items of maintenance and their periodicity.

Code of suggested action is:

NR.	Item	Check or maintenance jobs	0 Km Pre-delivery	500 Km	3000 Km	6000 Km	9000 Km	12000 Km	15000 Km	18000 Km	21000 Km	24000 Km	27000 Km	30000 Km
1	Engine Oil	Filling	R											
		Replacement		S	Check level every 1000 Km and top up if required. Replace every 3000 Km or every 1 year.									
2	Engine Oil Filter	Replacement		S	Replace every 3000 Km or every 1 year.									
3	Engine Oil Filter Screen	Clean		P	P	P	P	P	P	P	P	P	P	P

Maintenance by Authorised Service Dealer

NR.	Item	Check or maintenance jobs	0 Km Pre-delivery	500 Km	3000 Km	6000 Km	9000 Km	12000 Km	15000 Km	18000 Km	21000 Km	24000 Km	27000 Km	30000 Km
4	Spark Plug	Check/Replacement		C	C	C	C	S	C	C	C	S	C	C
5	Air Filter and its elements	Clean/Lubricate			P	P	P	S	P	P	P	S	P	P
6	Fuel Circuit Pipes	Check/Replacement	C	C	C	C	C	S	C	C	C	S	C	C
7	Fuel Filter	Check/Replacement		C	C	S	C	S	C	S	C	S	C	S
8	Check Emission Level	Check/Adjust		C	C	C	C	C	C	C	C	C	C	C
9	Valves Clearance	Check/Adjust		C		C		C		C		C		C
10	Nut Fixing Head/Cylinder	Check/Tightened	C	C	C	C	C	C	C	C	C	C	C	C

Maintenance by Authorised Service Dealer

NR.	Item	Check or maintenance jobs	0 Km Pre-delivery	500 Km	3000 Km	6000 Km	9000 Km	12000 Km	15000 Km	18000 Km	21000 Km	24000 Km	27000 Km	30000 Km
11	Chain & Chain Tensioner	Check/Replacement				C		C		S		C		C
12	Chain Guide	Check/Replacement				C		C		C		C		C
13	Electrical System	Check	C	C	C	C	C	C	C	C	C	C	C	C
14	Battery	Check	C	C	C	C	C	C	C	C	C	C	C	C
15	Front Brake System	Check/Replacement	C	C	C	C	C	C	C	C	C	C	C	C
		Replace brake oil every 12000 Km or every 2 years												
16	Rear Brake System	Check/Adjust/Replacement	C	C	C	C	C	C	C	C	C	C	C	C
17	Clutch Lever Play	Check/Adjust	C	C	C	C	C	C	C	C	C	C	C	C

Maintenance by Authorised Service Dealer

NR.	Item	Check or maintenance jobs	0 Km Pre-delivery	500 Km	3000 Km	6000 Km	9000 Km	12000 Km	15000 Km	18000 Km	21000 Km	24000 Km	27000 Km	30000 Km
18	Accelerator Command	Check/Adjust	C	C	C	C	C	C	C	C	C	C	C	C
19	Steering Column Rings	Check/Adjust	C	C	C	C	C	C	C	C	C	C	C	C
20	Security Tightened Nuts, Bolts and Screw	Check/Tightened	C	C	C	C	C	C	C	C	C	C	C	C
21	Central Stand	Check	C	C	C	C	C	C	C	C	C	C	C	C
22	Oil Pump Functioning	Check	C	C	C	C	C	C	C	C	C	C	C	C
23	Clean Crank Case Breather Tube	Check/Clean	C	C	C	C	C	C	C	C	C	C	C	C

Maintenance by Authorised Service Dealer

NR.	Item	Check or maintenance jobs	0 Km Pre-delivery	500 Km	3000 Km	6000 Km	9000 Km	12000 Km	15000 Km	18000 Km	21000 Km	24000 Km	27000 Km	30000 Km
24	Rear/Front Damper	Check	C	C	C	C	C	C	C	C	C	C	C	C
25	Wheels/Tires	Check/Replacement	C	C	C	C	C	C	C	C	C	C	C	C
			Tyre rotation every 6000 Km											

C: Check/Adjust
P: Clean/Lubricate
S: Replacement
R: Filling

EXHAUST EMISSION CONTROL

In accordance with the Central Motor Vehicle Rules, LML range of scooters manufactured by LML Limited meet emission standards prior to despatch from factory.

Normally simple carburettor adjustment will help to control CO level in exhaust gases. However, it is necessary to check Carbon Monoxide (CO) level in exhaust gases.

Following are some tips to control CO level in exhaust gases:

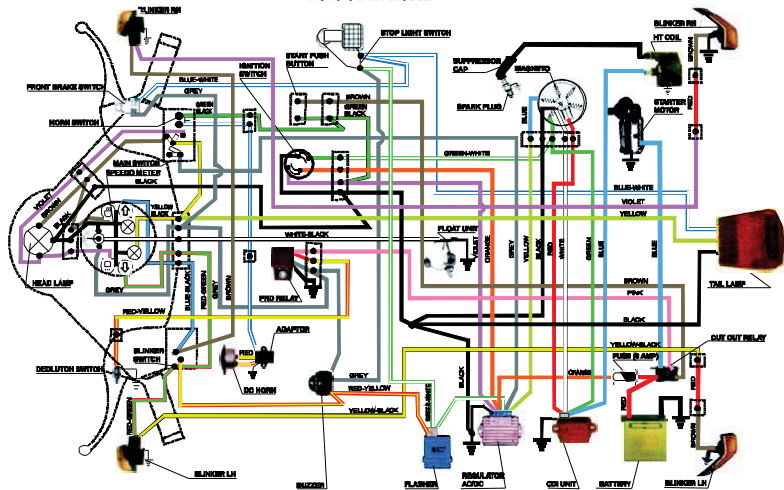
1. Use only recommended spark plug.
2. Clean the air filter and replace if required.

3. Clean and adjust carburettor properly.

Adjust the air mixture screw to $\frac{1}{2}$ to $1\frac{1}{2}$ threads anti-clockwise from fully to closed position and thereafter set idling screw 1000 to 1300 RPM.

4. Check the compression pressure and ensure that it is within limits. Check ignition timing and reset as recommended.
5. Check and adjust spark plug gap.

WIRING DIAGRAM AUTO START MODEL



SECONDARY AIR SUPPLY SYSTEM

Secondary air supply system

Removal /Installation

- (A) Remove hex bolts (Fig . 47) of mounting bracket secondary air system.
- (B) Disconnect tube to Air cleaner box (X), intake manifold (Y) by removal of spring clips.
- (C) Disconnect tube (Z) to Silencer by removal of hose clamp.
- (D) For cleaning, blow air through pipe X. Y. Z.
- (E) Check tubes for leakage replace if necessary.

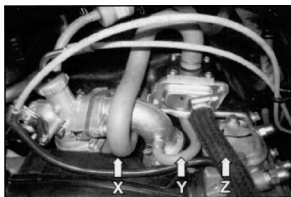
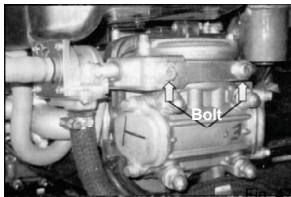


Fig. 48

The descriptions and illustrations in this booklet are not to be taken as binding on the manufacturer. The essential features of the model described and illustrated herein remaining unaltered, LML Limited, reserves the right to carry out at any moment, without being obliged to bring this booklet up-to-date, modifications to the machine, its parts, or accessories, that the company deems to be convenient for improvement purposes or of what may be required for manufacturing or commercial purposes.



C-10, Panki Industrial Estate, Site II, Kanpur - 208022, INDIA.

☐: 91-512-2691381, 6660300 ☐: 91-512-2691391, 6660301 ☐: lmknp@lm-india.com